Comment on

The UK Competitive Market Authority's (CMAs)

Cloud Services Market Investigation

Provisional Decision Report

By

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Introduction

This report responds to the UK Competition and Market Authority (CMA) Cloud Services Market Investigation (CMI) Provisional Decision Report (PDR) of 28 January. I have previously commented on the three CMA working papers 1-3 accompanying the release of the CMA's Progress Update tin May 2024, [1] and the CMA's updated issues paper, and three working papers (WP) 4-6 that accompanied it, released on 6 June 2026.[2] I welcome the opportunity to provide this comment on the CMA PDR.

Outline

The paper consists of two parts:

- Part One is shorter and provides an overview
- Part Two is longer and more detailed.

[1] Available here https://www.gov.uk/cma-cases/cloud-services-market-investigation
[2] Available here https://www.gov.uk/cma-cases/cloud-services-market-investigation

PART ONE: - OVERVIEW

In general, I have identified two sets of problems

1. **Matters of principle** or fundamental underlying problems: There appear to be a number of fundamental problems in the CMA's underlying legal and economic approach to its task that have led it to make a number of fundamental errors, and mistakes in the provisional decision report. And

2. **Applied matters**

I summarise both in turn below.

Matters of Principle or Fundamental Underlying Problems

There are a number of fundamental foundational issues framing the CMA's Task, and its statutory duty that seem to be causing problems.

i) The CMA's Objective and Statutory Duty: The PDR does not identify the CMA's objective and integrate that sufficiently into all its work. The Enterprise and Regulatory Reform Act 2013 (ERRA) states "The CMA must seek to promote competition, both within and outside the United Kingdom, for the benefit of consumers." [3] The CMA's exercise of its powers under the Enterprise Act thus must fulfil or comply with its duty to promote competition for the benefit of consumers. The PDR however does not make reference to the overarching objective of the CMA, or test, nor embed it in the formulation of its hypothesis. The CMA instead appears to mainly focus on an ill-defined notion of competition per se as its objective. This is a fundamental problem. The CMA must ultimately look to consumer benefits when evaluating competition and interventions.

ii) Future Consumers and Economic Growth. The PDR does not adequately focus on the key point that the CMA should seek to optimise consumer benefits over time including the effects of its interventions on future consumers, where the greater mass of any consumer benefits impact will lie.

iii) The Nature, Role and Limits of Competition; The PDR appears mainly focused on competition per se as its objective. Yet competition is left ill defined, and as I outline competition can have bad effects, unless it is structured or harnessed by a system of well-defined, allocated and protected private property rights.

[3] Section 25(3) of the Enterprise and Regulatory Reform Act 2013 (the ERRA13).

iv) The Role and Importance of Property Rights. The PDR does not acknowledge that a primary duty of the CMA is to protect private property rights from costly uncompensated takings, and the high costs of CMA intervention.
v) The Role and Limits of Competition Law and Policy. The PDR does not recognise that CMA intervention using competition law and policy, including the Digital Markets, Competition and Consumers Act (DMCCA) in fact involves uncompensated takings of property rights that in turn require strict limits on the role of competition law and policy and the DMCCA. This can be achieved by a focus on protecting private property rights, and primarily addressing legal and state fiscal supports that create barriers to entry and harm to consumers in the CMA's work.
vi) The Counterfactual (or Benchmark). The PDR is not clear about the counterfactual it uses to assess the current markets performance. The null hypothesis or counterfactual and benchmark must be that the market based as it is on well-defined property rights is a competitive or well-functioning market. Ultimately intervention should only be considered if there is very strong evidence the null hypothesis that the market is competitive can be rejected. It is then also essential to prove the CMA can improve outcomes in terms of consumer benefits over time net of the inevitable high costs of its intervention.
vii) The Idealised Competitive Market Nirvana Fallacy. The PDR appears to rely on an Idealised competitive market as the basis for identifying features of a market that adversely affect competition. This may lead to over intervention. The lack of attention to the inevitability and role of transaction costs in this regard is key. The task should be to realistically compare unregulated market outcomes versus outcomes under regulated market options in terms of consumer benefits over time, and whether the benefits of regulation exceed the costs from uncompensated takings of property rights
viii) The Intrinsic Features Exception. The PDR's treatment of the intrinsic feature exception in competition law appears flawed. The CMA needs to be careful to protect intrinsic features of a market that are clearly beneficial to consumers. Current errors focus on the CMA demonising approach to economies of scale in production and consumption (including network effects), product differentiation, transaction costs and learning by doing - all of which are being treated as if they create an adverse effect on competition (AEC) to the detriment of consumers, which seems very unlikely, and disregards the intrinsic (non-separable) and very high net value of these features. Without extreme care, serious attention, due regard and celebration of these intrinsic features of a market the major benefits of these intrinsic, or inseparable market features, will be lost by intervention or threat of intervention
ix) Evidence and the Burden and Standard of Proof. The PDR is not clear about the burden of proof that is on the CMA to refute the null hypothesis that the

market is competitive, and that the standard of proof to be met is high. The burden of proof and standard is currently not being met as a result.

x) The Risks and Costs of Regulatory Failure. Even though markets may fail, it has to be recognised that regulation may contribute to that failure - or only make matters worse. While intervening in a workably competitive market is simply unjustifiable in the first place, as it will inevitably weaken property rights (including the right to contract) without compensation and have an AEC and distort the markets operations as a result. There is no discussion of regulatory failure and regulatory risk and costs in the PDR yet this needs to be assessed to justify for the CMI in the first place. It appears the CMA assumes that so long as it can identify a restrictive contract term then of course the CMA can make matters better, and this justifies the CMI. It is assumed that inquiry into such matters itself has no adverse effect on competition. Regulatory failure is however well documented, likely if not inevitable and common, its theoretical foundations are well established, and empirical methods exist to test its extent - but the CMA does not seem to embed or factor it into its analysis or do any work on it formally. The costs of regulatory failure need to be factored into cost-benefit decisions on whether to establish and launch an inquiry, and/or otherwise regulate. Public choice theory, regulatory economics and the theory of bureaucracy clearly explain the key problems including interest group capture, information costs, incentive problems, median voter problems, regulatory creep, regulatory bias etc. Regulatory failure is thus often driven by protectionist motivations, or justifications that in fact are most likely to contribute or cause problems like ““entrenched market positions” and “potential harmful competition behaviour” through premature and costly inquiries, and then adoption of harmful regulatory interventions that foreclose competition and weaken competition by “balkanisation” of the global market through domestic regulation. The CMI is clearly stimulating domestic interest group coalition formation, facilitating regulatory capture, and therefore exacerbating, and accelerating the risk of regulatory failure. This justifies not continuing with the CMI at such an early stage, and ending the inquiries into competition in the Pubic Cloud Infrastructure Services (PCIS) market before they cause more regulatory problems and harm to consumers than it has been proven it could ever actually avoid. A prima facie case that embeds and factors in the costs and risk of regulatory failure is required first.

xi) The PDR is not clear about the relationship between its investigation and the Government’s Economic Growth and Industry Strategy which relates back to its own statutory objective of optimal consumer benefits over time

Applied Points

It may be differences or misunderstandings on the above fundamental points I believe that are manifesting themselves in my concerns throughout the PDR. In my report below I comment in

detail on the PDR, but focus here in particular on a few key applied points of concern. The following key applied issues stand out;

1) **Market definition-** The PDR does a very poor job defining the relevant markets both for the so-called cloud services market, and the software licensing market. It does not formally and explicitly derive the relevant market(s) clearly using sound theory or the received hypothetical monopolist test (HMT) or sustained non-transitory increase in price (SNIP) test to define the market properly. This seems negligent not to have done this work to establish a prima facie case. The CMA's approach to the Pubic Cloud Infrastructure Services (PCIS) market is to dismantle it into a series of smaller markets, by in essence adopting a fundamentally supply-side engineering approach to define market services, combined with the use of vague metaphors (e.g. "the cloud", "platform") and a proliferation of acronyms (e.g. PaaS, IaaS etc.). The CMA thus simply identifies and then combines various engineering components taken from an engineering design plan, "technology stack" or map, and then disaggregates the market it was given to study (the public cloud infrastructure services market) into these component engineering elements that it alleges offer *services* that are ill defined (e.g. "platform", "infrastructure"). It then considers the degree of substitution between these "off the Tech stack" ill -defined "focal" services (IaaS, PaaS and SaaS) in surveys to test and define markets. This is not an economic approach to market definition, and it is fundamentally flawed. The result of the CMA's vague "technology stack" plus "metaphor" and "acronyms" approach is that it defines a set of very narrow markets for what it calls IaaS, PaaS and SaaS. As a result, the CMA fails to identify and actually test key constraints that would prevent the exercise of market power in any of these assumed separate markets. This leads the CMA to overstate both the extent of market power of firms, and the potential for abuse of market power by those firms, by for example negotiating anti-competitive egress fees or licensing terms as discussed later. The CMA further increases the narrowness of the PCIS markets it investigates by limiting them to markets in the UK or EEA with cloud data centres, rather than a global market. The CMA's very narrow resulting market definition inevitably then leads the CMA too readily to the unreliable conclusion that firms hold significant market power and ultimately are abusing that power. By comparison I propose the CMA should have at least stayed with the original wider market definition forming the focus for the Market investigation - or the PCIS – which I note is clearly part of a wider market that I define as the market for the acquisition and supply of computer storage, processing and network capability (CSPNC) globally. This global CSPNC market subsumes the various separate markets the CMA uses (i.e. IaaS, PaaS and SaaS) and others and is better and more clearly named. Similar, if not worse problems are manifest in the software licensing market analysis of the CMA. The CMA begins with, and never expands beyond the very narrowest software market definitions possible, each largely focused on a Microsoft product. This leads it too easily to conclude the Microsoft has market power, when that is very unlikely, and it should be presumed not to have market power in any event, until there is strong evidence to refute the necessary presumption that the market properly defined is competitive.
2) **Market power.** The PDR adopts a very poor theoretical and empirical approach to refuting the hypothesis that the market is competitive and proving the existence of market power in

the relevant market**.** This question has to be answered prior to addressing whether any conduct (e.g. relating to egress fees or software licensing etc.) can create an adverse effect on competition (AEC). To be subject to CMA regulation under the Enterprise Act any market feature has to have the impact or effect of adversely affecting competition to the detriment of consumers. But this depends on the prior question whether there is market power to permit such conduct, or whether the market is sufficiently competitive to prevent sustainable anticompetitive behaviour that has such an AEC in the first place. Similarly under the DMCCA, before firms can be designated with Strategic Market Status (SMS) the first step and necessary condition in an SMS designation is that the CMA must prove that the firms being designated have substantial and entrenched market power. Five key relevant competitive conditions I discuss in detail in part two determine market power – these are

i) In market rivalry
ii) Substitution possibilities for customers, consumer's and/or suppliers
iii) Barriers to entry
iv) Counter-veiling Consumer power,
v) Counter-veiling Supplier Power.

Having defined the market(s) then one needs to evaluate the markets' five key competitive conditions and whether there is evidence of any market power, which I do and show there is no market power in the CSNPC, nor in any assumed software licensing market within the CSNPC. I show on all five counts that the relevant markets are competitive. This prior and primary question on competitive conditions (including barriers to entry and expansion) needs to be addressed first before considering contracts or licensing terms. Thus, egress fees and licensing agreements could not have an AEC, as there are no barriers to entry to new entrants, nor to expansion by the parties in the CSPNC market. Even if the parties to a contract sought to have an AEC they would fail, as consumers would avoid any such effects, as there are low barriers to entry and expansion by competitors. **A key problem with CMA's approach is that it fails to define a barrier to entry properly as a cost incurred by an incumbent not incurred by a new entrant.** It instead treats economies of scale (both in production and consumption, the latter termed network effects) and economies of scope and product differentiation and learning by doing as barriers to entry, which they are not, as they don't involve cost barriers that the incumbent does not face. This together with a narrow market definition leads the CMA to conclude there is market power in the CSNPC and related software markets when there is not. Whatever the details of contracts and licensing agreements one has to ask whether the parties to any of the agreements have relevant market power or can through the agreements create market power that enables them acting together have an adverse effect on competition. To answer this question as noted one must consider the likely behaviour of the parties involved in the agreement, and of others not directly involved in the agreement as outlined above.

3) **Abuse of market Power.** The PDR further fails to show there has been an abuse of market power. Even if market power is shown to exist, there has to be evidence of behaviours that entail abuse of market power, and not legitimate commercial practise. This includes evidence of

i) Unilateral abuse of Market Power - relating to pricing, quantity, or quality

ii) Co-operative behaviours likely to substantially lessen competition including
    (1) Contracts or agreements in restraints of trade
    (2) Mergers and acquisitions and
    (3) Cartels

There are a number of critical problems with the CMA's conclusions in the PDR that illustrate and flow from its fundamental failure on matters of principle relating to market power analysis outlined above. This is illustrated in the CMA approach to unilateral market power. In the PDR Summary chapter (paragraph 29 page 15) the CMA concludes *"We have provisionally found that high levels of market concentration and barriers to entry and expansion have enabled each of the two largest providers, AWS and Microsoft, to hold significant unilateral market power in these markets."* For reasons I address in detail in Part Two the CMA clearly has not proved market power in general in the relevant markets. But more problematically, certainly not the unilateral market power that the CMA claims to have shown in the above quote from paragraph 29. By definition unilateral means performed, undertaken or done by one party. It is thus clearly not possible for **two** large payers in the CSPNC market (like AWS and Microsoft) to **each** have significant **unilateral** market power. There can be no unilateral market power in a market with two or more players. The reason why is that any unilateral market power of one would be countered competitively by the other player(s). One player cannot abuse market power unilaterally. This conclusion that AWS and Microsoft both have *unilateral* market power, yet clearly (at least) compete with *each other*, is a fundamental error, illustrating and reflecting the more fundamental underlying problems and errors of principle in the PDR that I have outlined above. The PDR further in essence alleges the parties' contracts or licensing agreements may be in restraint of trade, hypothesising that terms in the parties' contracts or licensing agreements have an adverse effect on competition (AEC). Given the fundamental problems with the CMA's market definition and market power listed above, the CMA has not provided sound theoretical grounds or reasons and prima facie evidence why the agreements would be likely to have an AEC to the detriment to consumers. Two main reasons they cannot. First there is no scope of recoupment, as market competition would eliminate scope for recoupment and such AEC over time, given the low barriers to entry and expansion. Second contract terms like the ones identified would not be enforceable in the common law doctrine of restraint of trade anyway. The problem of recoupment is that the CSPNC or software provider asking for excess prices or fees that are above market rates is incurring a cost upfront that they can't recover. Contracting has to be looked at in its entirety. Excessive prices or fees above market rates will have costs elsewhere in a contract or business, including the costs concessions on other terms to offset excess fees for custmers, or lost sales. The CMA does not adequately address the fact that any pricing above direct and opportunity costs is very unlikely to persist. Given the CSPNC and software markets are competitive the CSPNC and software firm will not be able to recover the upfront costs of excess prices or fees or other inefficient restrictions later. New entrants will enter the market, and incumbents will expand to take the clients from them. Not only is the CMA's theory of harm weak the CMA does not provide any prima facie evidence of abuse of market power as claimed. The burden is on the CMA to be both reasonable and not act beyond its jurisdiction or powers. By failing to make a prima facie case to justify its

increasing intervention in the affairs of market players and their property rights it is arguably failing to do that.

4) **Evidence of Harm.** The PDR provides no real evidence of harm apart from the estimate from a 5% price rise on 9 billion dollars which seems quite amateurish, and the analysis of the profitability data of suppliers presented by CMA, which is not relevant evidence of market power, nor the scope for its abuse and harm. Whereas there is considerable *evidence of the beneficial effects of competition* in the markets, or a well functioning market, given prices have clearly fallen - not risen - and investment and innovation (e.g. AI) and quality are rising. There are many other markets where there is much greater reason for effort on competition law, compared to the CSPNC and software markets. The CMA's priorities for investigations seem all wrong.
5) **Remedies and Regulatory Failure**. The PDR when considering remedies does not adequately or seriously analyse the relevant risks and costs of regulatory failure by the CMA. Even though markets may fail, it has to be recognised that regulation may contribute to that failure - or only make matters worse. A prima facie case that embeds and factors in the costs and risk of regulatory failure is required first.

PART TWO - DETAILED SUBMISSION

The table below presents the outline of the CMA's Provisional Decision Report (PDR) in the left column. The outline of my report is shown in the right column of the table. The table provides a guide as to how my report (on the right) corresponds to the PDR chapters (on the left). The main changes in my outline compared to the CMA's are as follows

- The CMA's report consists of a Summary, and nine numbered chapters shown in the left column.
- The CMA's "Summary" and its first chapter on "Our Task" are shown in the first two rows on the left. I mirror these two chapters in my report, as shown on the right of the table
- The CMA's next four chapters (2-5) all relate to what the CMA calls the Public Cloud Infrastructure Services (PCIS) markets. So, I have grouped my response to each of these CMA chapters (2-5) in one (long) chapter in my report called the PCIS market shown in the second shaded row of the table. The sections A to D of my chapter 2 then correspond to the CMA 's 2-5 as follows
    - I combine the elements of CMA's chapters 2 and 3 that deal with its market definition for the PCIS market in subsection A of my chapter 2, called Market Definition
    - I combine CMA's treatment of market power in the PCIS market in CMA chapters 3 and 4 in subsection B of my chapter 2, called "Market Power"
    - I address CMA's treatment of Barriers to switching and multi cloud covering Egress Fees and Technical barriers in subsection C of my chapter 2, called "Abuse of Market Power", as egress fees and technical barriers to switching are explicit and/or implicit terms of contracts, or forms of behaviour, or conduct.
- The CMA's Chapter 6 covers licensing practices of Microsoft in software markets that the CMA claims to involve separate market(s). I therefore create a separate chapter 3 on software market(s), shown on the right where I address in separate subsections relevant questions relating as listed to A. Market Definition, B. Market Power, C. Abuse of market power and D. Remedies in the software markets raised by the PDR in chapter 6.

CMA PDR	My Report
Summary	The CMA's Summary
1. Our Task	1. CMA's Task
	2. The PCIS Market
2. Industry background	A. Market Definition
3. Competitive landscape	B. Market Power
4. Barriers to entry and expansion	C. Abuse of Market Power
5. Barriers to switching and multi-cloud	D. Remedies
6. Licensing	3. Software Market
	A. Market Definition
	B. Market Power
	C. Abuse of Market Power
	D. Remedies

7. Committed spend agreements	X
8. Provisional decision on competition	See Part One Overview
9. Our proposed remedies	See Chapter 2 D, and Chapter 3 D

- The CMA's Chapter 7 covers "Committed spend agreements" in the PCIS market. The CMA has decided not to proceed on that theory of harm in its PDR. This is what I recommended in my first submission on the topic for reasons I outlined there[4], and therefore I have nothing more to comment on that topic. I therefore do not separately address chapter 7 of the PDR (or section 6 of the summary) which both cover Committed spend agreements.
- The CMA's final Chapter's 8 and 9 summarises the CMA's Provisional decision on all matters and its recommendations on Remedies. For Chapter 8 of the PDR I refer to my response my Overview in Part One, and for Chapter 9 I refer to my detailed discussions on remedies proposed in the PCIS, and in the relevant Software markets earlier in my report as shown (my Chapter 2 subsection D, and Chapter 3 subsection D)

Statutory Context

The Enterprise and Regulatory Reform Act 2013 (ERRA) clearly states.

> "The CMA must seek to promote competition, both within and outside the United Kingdom, for the benefit of consumers." [5]

ERRA is thus clear that the mandate and sole objective[6] of the CMA, under competition law and policy including the Digital Markets Competition and Consumer Act is to maximise consumer benefits, or welfare over time.

I summarise the relevant Statutory provisions governing the CMA in this Investigation under the Enterprise Act in Appendix One, but in summary to be subject to CMA regulation under the Enterprise Act the CMA has to prove, or show that there is a "feature, or combination of features of a relevant market"[7] that have "an adverse effect on Competition"[8] (AEC) "or a detrimental effect on customers or future customers."[9] – not offset by "any relevant customer benefits of the feature or features" [10] that are "unlikely to accrue without the feature or features concerned"[11] "within a reasonable period" [12] Under the DMCCA on the other hand,

[4] https://assets.publishing.service.gov.uk/media/66827226c7f64e234209018f/240627_zeds_Submission_of_Dr_George_R_Barker_to_CMA_Working_Papers_.pdf

[5] Section 25(3) of the Enterprise and Regulatory Reform Act 2013 (the ERRA13).

[6] It is noteworthy that the second claim that Cardell makes in her speech, which we discuss later "that competition can be balanced alongside other policy objectives", **appears to** mistakenly imply the CMA can become involved in a balancing of objectives

[7] section 134(2)

[8] section 134(2) of the Act

[9] s134(4) of the Act

[10] s134(7) of the Act

[11] s134(8)(b)(ii) of the Act

similar to competition law found in other legislation, before firms can be designated with Strategic Market Status (SMS) under the DMCCA the first step and necessary condition in an SMS designation is that the CMA must prove that the firms being designated have substantial and entrenched market power, and prove abuse of that power.

The overarching objective of the CMA is to benefit consumers/customers. The focus of the provisional decision therefore has to be on clearly identifying **a feature or a combination of features of a market that have a detrimental effect on consumers/customers or future consumers/customers,** and/or proving substantial and entrenched market power, and abuse of that power causing substantial harm, that can further be remedied by intervention without offsetting costs.

One would expect to find these market features identified at the outset in the CMA's Summary of the PDR which I turn to next.

The CMA's Summary

In the PDR Summary chapter (Pages 15-16), the CMA presents its provisional decision on competition as follows

> 28. Our task is to examine whether there are any **feature(s) of the UK cloud services markets t**hat lead to an adverse effect on competition.
>
> 29. We have provisionally found that high levels of market concentration and barriers to entry and expansion have enabled each of the two largest providers, AWS and Microsoft, to hold significant unilateral market power in these markets. This harms competition in cloud services in the UK because it is harder for alternative cloud suppliers to enter and grow in these markets and customers face a limited choice of suppliers. This harm is exacerbated by the features we have found arising from technical and commercial barriers.
>
> 30. We have also provisionally found that there are technical barriers and commercial barriers in the form of egress fees to switching and multi-cloud that harm competition in cloud services in the UK by locking customers into their initial choice of provider which may not reflect their evolving needs and limiting their ability to exercise choice of cloud provider. These barriers can restrict customers from responding to attractive offers or accessing innovative new services from another provider, leading to weaker competition between providers.
>
> 31. We have provisionally found that Microsoft's licensing practices are partially foreclosing AWS and Google which is having an impact on their competitive positions, and that this harms competition in cloud services in the UK. It

[12] s134(8)(b)(i) of the Act

also exacerbates the harm we have provisionally found arising from high market concentration and barriers to entry and expansion in relation to Microsoft's significant unilateral market power.

There appears to be a fundamental problem with the CMA's provisional decision at this point as follows.

The CMA appears to claim and identify *three features of a market* that have an adverse effect on competition, each feature being identified in separate paragraphs 29, 30 and 31 above. The CMA doesn't make clear however whether each of these three features is a stand-alone feature causing an AEC to the detriment of consumers, or whether the three act together as a combination of features that have an AEC to the detriment of consumers. In this regard none of the three features identified alone could have an adverse effect on competition (AEC) to the detriment of consumers for the following reasons.

1) The Feature identified in paragraph 29 appears to address **the existence of market power in** the UK cloud services markets. The CMA claims in paragraph 29 that the two largest providers in UK cloud services markets (AWS and Microsoft) each hold "significant unilateral market power" due to high levels of market concentration and barriers to entry and expansion. There are two problems with this claimed feature of the market.
    a. First, even assuming that the CMA has proven significant unilateral market power exists (which as I show below it has not) market power does not on a stand-alone basis itself create an AEC with detriments to consumers. The market power has to be abused in some way that causes an AEC to the detriment of consumers. There thus not only has to be evidence of unilateral market power there also has to be evidence of abuse of market power. Proving market power per se or standing alone does not necessarily prove an AEC. Market power is therefore not a stand-alone feature having an AEC. An abuse of market power is a further necessary condition. The CMA thus fails on causation unless it can show an abuse of market power as well. BOTH market power and an abuse of that market power that has an AEC to the detriment of consumers have to be proven - that is to say a combination of features have to be proven.
    b. Second however and finally the CMA clearly has not proved the feature it claims in paragraph 29, as it is clearly not possible for **two** large payers in a market (like AWS and Microsoft) to **each** have significant **unilateral** market power. The reason why is that any unilateral attempt to abuse market power by one would be countered by the other. So, this claimed feature does not exist and the CMA has failed to justify further action by the CMA. It has failed to prove beyond a reasonable doubt that there is an AEC with a detriment to consumers on this count alone and as described.
2) The Feature identified in paragraph 30 appear to be technical and commercial terms (like egress fees) in the contracts of a market player. Technical and commercial terms

(like egress fees) in the contracts of a market player are also not standalone features that can have an AEC to the detriment of consumer. Technical terms of supply, and commercial terms like egress fees can only have an AEC to the detriment of consumers if there is market power. Technical terms of supply, and commercial terms like egress fees are only forms of conduct or behaviour, i.e. terms in an agreement. Unless the party imposing such terms has market power such conduct, or behaviour cannot have an AEC to the detriment of consumers. Any unilateral attempt to impose a detriment on consumers through technical or commercial terms (like egress fees) would be countered by the other competitors taking the consumers business away – either ex ante, and/or ex post. So this claimed feature also fails to justify further action by the CMA *as a stand-alone feature* – i.e. unless the CMA has proven the parties imposing the terms has market power. Once again this is not a stand-alone feature. As I explain further below in detail the CMA has also again failed to prove beyond a reasonable doubt that there is an AEC with a detriment to consumers on this count as well.

3) The Feature identified in paragraph 31 (like in paragraph 30) appears to also refer to contract terms, i.e. licensing practices of Microsoft. As with the feature in para 30 licensing practices are just terms of a contract of a market player, and so are not standalone features that can have an AEC to the detriment of consumer. Terms of supply, or commercial terms like licensing practises can only have an AEC to the detriment of consumers if there is market power. Unless the party imposing such terms has market power such conduct or behaviour on contract terms cannot have an AEC to the detriment of consumers. Any unilateral attempt to impose a detriment on consumers through contract terms in a license would be countered by the other competitors taking the consumers business away – either ex ante, and/or ex post. So, this claimed feature also fails to justify further action by the CMA as a stand-alone feature – i.e. unless the CMA has proven the parties imposing the licensing terms has market power – in this case in the software market in which the licensing occurs. Once again then this is not a stand-alone feature. As I explain further below in detail the CMA has also again failed to prove beyond a reasonable doubt that Microsoft has market power in the licensing market in which the terms arise and there is an AEC with a detriment to consumers on this count as well.

Some of the above problems manifest in the CMA's opening summary of the PDR are also manifest in other chapters that summarise the CMA's provisional decision including the CMA Notice, Chapter 8 and the CMA 2013 Market Investigation guidelines I discuss further below in this chapter and later ones.

Thus for example the Notice in paragraph 3 and 4 lists the same three ***claimed features of the market*** that I address above and that the Notice claims the CMA has found - or proven - as follows:

> 3. The Inquiry Group has provisionally found, pursuant to section 134(1) of the Act, that there are **features of the relevant markets** *which individually or in combination,*

prevent, restrict or distort competition in the supply of cloud services in the UK and accordingly that there are adverse effects on competition **(AECs)** within the meaning of section 134(2) of the Act.

4. The Inquiry Group has provisionally found that:

(a) high levels of market concentration and barriers to entry and expansion have enabled each of the two largest providers, AWS and Microsoft, to hold significant **unilateral market power in** these markets. This gives rise to an AEC in cloud services in the UK because it is harder for alternative cloud suppliers to enter and grow in these markets and customers face a limited choice of suppliers. This harm is exacerbated by the features we have found arising from technical and commercial barriers.

(b) there are **technical barriers and commercial barriers** in the form of egress fees to switching and multi-cloud that give rise to an AEC in cloud services in the UK by **locking customers into their initial choice** of provider 1 Terms of Reference (Ofcom.org.uk)2 which may not reflect their evolving needs and limiting their ability to exercise choice of cloud provider. These barriers can restrict customers from responding to attractive offers or accessing innovative new services from another provider, **leading to weaker competition between providers.**

(c) **Microsoft's licensing practices are partially foreclosing AWS and Google** which is having an impact on their competitive positions and that **this gives rise to an AEC in cloud services in the UK.** It also **exacerbates the AEC that we have provisionally found** arising from high market concentration and barriers to entry and expansion **in relation to Microsoft's significant unilateral market power.**

This repeats the errors of the PDR - and there are similar or related such errors I have identified in my review of the whole PDR document including chapter 8 which also summarises the provisional decision, and the CMA 2013 Market Investigation guidelines the CMA cites in this PDR. This raises a concern to my mind about a possibly fundamental *misunderstanding of the CMA's task* which I turn to next.

1. The CMA's Task

As the discussion of the summary above reveals there appear to be underlying problems in the CMA's underlying legal and economic approach to its task that have led it to make a number of fundamental errors, and mistakes in the provisional decision it has arrived at and summarized above.

The CMA's chapter one is in this regard a clearly a very important chapter. The CMA needed to succinctly map out the CMA's overarching statutory objective and duty and identify its underlying legal and economic approach, so as to lay the foundations for and guide its subsequent analysis. The CMA's chapter one is however very limited in that regard. This may explain the problems with the way it has presented its results in the Summary.

In this chapter I will therefore identify and expand on what I think are fundamental issues in relation to the CMA's approach to its task, or its overarching statutory objective and duty and underlying approach. In isolating these fundamental problems I will not only refer to problems revealed already in the summary and the CMA's Notice outlined above, and in chapter 1 "our Task", but also problems found in other relevant key parts of the document - including chapter 8 where the CMA further *summarises* its provisional decision.

The fundamental foundational issues framing the CMA's Task, and its statutory duty that I discuss in this chapter that seem to be causing problems include the following eleven issues:

i) The CMA's Objective and Statutory Duty
ii) Future Customer's and Economic Growth
iii) The Nature, Role and Limits of Competition
iv) The Role and Importance of Property Rights
v) The Role and Limits of Competition Law and Policy
vi) The Counterfactual (or Benchmark)
vii) The Idealised Competitive Market Nirvana Fallacy
viii) The Intrinsic Features Exception
ix) Evidence and the Burden and Standard of proof
x) The risks and costs of regulatory failure
xi) The CMA and the Government's Economic Growth and Industry Strategy

It may be differences or misunderstanding on these fundamental points I believe that are manifesting themselves in my concerns throughout later chapters of the PDR and that recur and I identify in my detailed comments on the PDR in later chapters below.

The CMA's Objective and its Statutory Duty

One needs to be clear on the overarching objective of the CMA and competition law to understand the nature of the CMA's statutory duty, how to apply the Adverse Effect on Competition (AEC) Test and formulate answers to the CMA's applied questions being addressed in the CMA's PDR. What is the CMA's statutory objective and duty?

The CMA's statutory objective and duty is found in the Enterprise and Regulatory Reform Act 2013 (ERRA) by which it was established, and assumed many of the functions of the previously existing Competition Commission and the Office of Fair Trading, which were abolished, with the CMA operating fully on 1 April 2014.

The Enterprise and Regulatory Reform Act 2013 (ERRA) states the CMA's statutory objective and duty

> "The CMA must seek to promote competition, both within and outside the United Kingdom, for the benefit of consumers." [13]

The CMA's exercise of its powers under section 134 of the Enterprise Act must thus must fulfil or comply with its duty to promote competition for the benefit of consumers. Promoting competition is merely the means it must focus on in pursuit of that ultimate objective of the benefit of consumers.

The CMA has taken on new digital markets regulation responsibilities under the Digital Markets, Competition and Consumers Act (DMCCA), which confers new functions on the CMA in relation to the regulation of competition in digital markets, but does not change its objective mandate or duty to the benefit of consumers. It must still fulfil or comply with its duty to promote competition for the benefit of consumers when performing its task, or role under the DMCCA.

CMA Position

The PDR in chapter 1 on "Our task", does not make reference to the overarching objective mandate or duty of the CMA to benefit of consumers, nor explicitly and systematically embed it in the formulation of all its questions, hypothesis and analysis. This is a fundamental problem.

Instead, the CMA at the outset incorrectly refers to its statutory duty based on the Enterprise Act 2002 as follows.

> 1.4 We are required to decide whether 'any feature, or combination of features, of each relevant market prevents, restricts or distorts competition in connection with the supply or acquisition of any goods or services in the United Kingdom or a part of the United Kingdom'.[14] If we decide that there are such features or combination of features, then there is an adverse effect on competition (AEC).[15] A 'feature' of the market refers to:
>
> (a) the structure of the market concerned or any aspect of that structure;
> (b) any conduct (whether or not in the market concerned) of one or more than one person who supplies or acquires goods or services in the market concerned; or
> (c) any conduct relating to the market concerned of customers of any person

[13] Section 25(3) of the Enterprise and Regulatory Reform Act 2013 (the ERRA13).
[14] The CMA refers here to Section 134(1) of the Enterprise Act 2002 (EA 02). The objective identified for the CMA in ERRA however overrides the provisions of the EA 02 in relation to how it should interpret and approach its statutory duty. The CMA in its PDR notes for present purposes, 'relevant market' means a market in the United Kingdom for goods or services of a description specified in the reference (section 134(3)(b) EA02).
[15] The CMA refers here to 6 Section 134(2) EA02.

who supplies or acquires goods or services.[16]

This statement reveals an overemphasise by the CMA on *competition per se as an objective*. Competition however is just the means to the CMA's ultimate objective of consumer benefit over time. The consumer benefit objective identified in the ERRA overrides the provisions of the EA 02 in relation to how it should interpret and approach its statutory duty. It should focus on promoting competition only as a means to the ultimate objective of consumer benefit. An AEC thus has to be assessed by reference to the objective of consumer benefits or detriments. Failure to focus primarily on its consumer benefit duty under the ERRA leads the CMA to incorrectly focus solely, or primarily on competition – not on benefits to consumers. As we shall see competition needs to be seen as a potentially misunderstood and imperfect means to achieve the CMA's true objective - which is consumer benefits.

This tendency to elevate competition to the status of an objective is further reinforced by the rather muddled and mild reference to the role of consumer benefits in its duty, in the following paragraph of the PDR where the **consumer** is not even mentioned, rather the CMA only references customers[17], and the CMA moreover even positions its consideration of effects on customers as only an option, in the alternative, as an "**or**", - and as something "**we may…have regard to**" - not **must** have regard to.

> 1.5 If we find that there is an AEC, we are required to decide the following additional questions:
>
> (a) whether action should be taken by us, or whether we should recommend the taking of action by others, for the purpose of remedying, mitigating or preventing the AEC concerned **or** any detrimental effect on *customers* so far as it has resulted from, or may be expected to result from, the AEC; [18]
>
> (b) and, if so, what action should be taken and what is to be remedied, mitigated or prevented.[19]
>
> 1.6 In choosing the appropriate remedial action, we are required to have regard to 'the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition and any detrimental effects on *customers* so far as resulting from the adverse effect on competition' [20] ***and we may***, in particular, have

[16] The CMA refers here to 7 Section 131(2) EA02.19

[17] The distinction is usually drawn between a consumer who is the one who consumes goods or services and is the end-user, whereas a customer is the one who actually buys it. A consumer can be a customer, but the reverse is not true

[18] The CMA refers here to "According to section 134 (5) EA02 there is a detrimental effect on customers if there is a detrimental effect on customers or future customers in the form of: (a) higher prices, lower quality or less choice of goods or services in any market in the UK (whether or not the market(s) to which the feature or features concerned relate); or (b) less innovation in relation to such goods or services.

[19] Section 134(4) EA02.

[20] Section 134(6) EA02.

regard to the effect of any action on any relevant *customer* benefits of the feature or features of the market(s) concerned.[21]

In short the CMA focuses on and elevates competition and the AEC test specifically as at the core of its statutory duty, and does not even mention consumer benefit in its discussion or elaboration of its statutory duty, let alone make it necessary or essential – even though consumer benefit is the core of the CMA's statutory objective and duty.

I will try to make this more clear, and identify the basic problems I see that need to be addressed better in this chapter below not only in relation to the treatment of the CMA's objective, but other key foundational issues that have consequences or ripple effects throughout the report.

Comment

The failure to even reference, let alone focus on and elevate the CMA's overarching objective or duty to consumer benefits, reflects and creates a fundamental weakness in the PDR, and in all likelihood in the comments on it. This is particularly true, as the CMA needs to use its objective to define and apply the AEC Test, as we shall see.

The CMA can **fail** in its duty to promote competition for the benefit of consumers through exercising its powers in a manner that

- Intervenes too little in markets
- Intervenes too much in markets

Failures in the CMA's duty on these count may well be subject to court review under administrative law.

A key issue for the CMA may be that it needs to be very careful of likely inherent and inevitable even understandable bias in its approach to its duty. Given competition is in its name, that it is set up to identify and remedy problems with competition in markets, and regulate competition in markets, it is likely that it may be subject to *confirmation bias*[22] or the tendency to search for, to interpret, to favour, and to recall information that confirms or supports a need for regulate competition in markets, being the rationale for its existence. The likely prior beliefs of CMA staff who have self-selected, and applied for a job in regulating competition, and who were

[21] Section 134 (7) EA02.

[22] See Nickerson R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. Rev. Gen. Psychol. 2, 175–220. doi: 10.1037/1089-2680.2.2.175. See also a recent literature review that shows that, overall, professionals are prone to confirmation bias and a number of other Cognitive Biases. See Vincent Berthet (2022) The Impact of Cognitive Biases on Professionals' Decision-Making: A Review of Four Occupational Areas. Front. Psychol. , 04 January 2022 Sec. Personality and Social Psychology Volume 12 - 2021 | https://doi.org/10.3389/fpsyg.2021.80243

recruited and employed by existing CMA staff whose belief and predisposition may in all likelihood tend to favour the need to regulate competition in markets.

The relevant benefits to consumers identified in the ERRA that the CMA should be focused on, and seek to promote, include of course the benefits accruing to consumers as users of goods and services over time, which is technically called their expected "consumer surplus" over time, being the value above the price paid for any goods and services accruing to consumers over time.

The inter-temporal nature of the consumer welfare maximisation problem here implies it is also important the CMA protect "producer surplus"[23] or ensure a reasonable or efficient return to productive activity, and not seek to simply redistribute value or wealth from producers to consumers.

A purely redistributive approach to the CMA's objective, or to promoting consumer benefits, would only provide short run gain to current consumers at the expense of future consumer welfare, and encourage wasteful rent seeking. Unless producers earn a reasonable return there will be less investment over time, and therefore adverse inter-temporal effects on consumers welfare in the future. These adverse effects can include

- Higher prices,
- Lower quality,
- A narrower range of services offered,
- Worse service and
- Lower levels of innovation.

Protection of producer surplus also benefits consumers in other ways – it affects the terms and conditions of employment of consumers in their role as workers and producers of goods and services ("working conditions"), and it affects the expected value consumers earn as investors, either in companies (e.g. directly or indirectly for example through their pension funds) and in other personal property - including the expected value of their real estate, and the expected value of their income from deposits in banks, and from life, health and property insurance firms etc. The expected value of consumer investments are affected by the real rate of growth of the economy, which is affected by the rate of investment, which in turn depends on the protection of producer surplus or an efficient rate of return in investment through protection of private property rights.

Future Consumer's and Economic Growth

In its discussion of its statutory objective and duty, the CMA further fails to explicitly mention and sufficiently emphasise that in order to fulfil its statutory objective and duty the CMA must

[23] Producer surplus is an economic measure of the difference between the amount a producer of a good receives and the minimum amount the producer is willing and able to accept for the good

focus on consumer benefits over time. In this regard *the greater share of relevant consumer benefit effects are likely to be in the future, and affect future consumers*. This is true given the greater number of such consumers, and the potential for much greater average wealth worldwide in the future that is possible through ongoing innovation and economic growth if property rights are well protected. The CMA's focus, information base, evidence and knowledge however is largely and inevitably backward looking, and lagging developments in the markets, leading to potential anchoring biases. [24]

The CMA is inevitably at best focusing on current consumers and therefore unlikely to be able to truly assess the extent of the greater weight of consumer benefit that lies in the future This is particularly true of digital markets. We are still in the early days of a digital revolution that began slowly in the late 20th Century and that is still only laying the groundwork for what is already being described as the fourth industrial revolution, where technologies in digital, physical and biological markets converge, fundamentally transforming industries, economies and societies and unleashing enormous consumer benefits in the future.

There is great uncertainty around how even the latest wave of fundamental innovation in digital markets involving artificial intelligence will play out. The premature regulation of digital markets in the face of such uncertainty or lack of information is likely to come at the costs of future consumers by chilling investment and innovation. In the face of such fundamental uncertainty, and the potential of loss of enormous future consumer benefits, the CMA is best advised to **wait and see** rather than regulate using the DMCCA or other legislation. Over time more information will emerge. The CMA will meantime retain the option and threat to regulate later. Meantime competition in digital markets will tend to discipline the perpetrators of damaging commercial behaviours, with market entry and expansion by competitors displacing the most egregious and consistent perpetrators in the market reducing the *cost of any error*. The **cost of error** by regulation far outweighs the cost of letting the market work at this stage. The CMA will **foreclose** competition, and never know the nature and extent of competition that might have emerged, and the damage it has done by regulating too early. As noted, the CMA can maintain the threat to intervene and regulate later *if necessary and beneficial* - once it has more information, and there is less fundamental uncertainty - allowing competition to develop and play out meantime.

The Nature, Role and Limits of Competition

The main problem with CMA's primary focus on competition rather than consumer benefits over time is that it never adequately defines competition, nor does the CMA explore its fundamental root cause, and nature. At best the CMA defines competition tautologically using

[24] Anchoring bias is a cognitive bias where individuals rely heavily on the first piece of information they encounter when making decisions, which can skew their judgment. This initial "anchor" influences how they interpret subsequent information, often leading to inaccurate conclusions.

an ill-defined concept of rivalry – and largely so called "within market" rivalry too via reliance on market shares, switching rates etc.

Competition however fundamentally arises from scarcity of resources and the self-interest of individuals. If resources were not scarce relative to human wants, there would be no competition or rivalry. Such competition or rivalry over scarce resources is clearly not necessarily a good thing. Competition or rivalry over scarce resources can be very destructive of consumer benefits in certain institutional contexts. In particular, in the absence of property rights protected from uncompensated coercive takings by private and state actors, competition can lead people to resort to coercion and violence to acquire wealth, both directly and indirectly through the state (including through the CMA), rather than through voluntary exchange in markets, and investing in wealth creation and innovation.

The CMA thus needs to stay focused on the fundamental point that what is in fact needed for competition to create optimal consumer benefits over time is **a stable system of tradable property rights that defines sanctioned relationships between people with respect to scarce resources.**

The very adverse impact on economic growth of competition in the absence of property rights that are well protected from uncompensated coercive takings is evidenced around the world both today, and in the history of all countries over time. In extreme terms this is illustrated by armed conflict, or wars in 50-60 countries today, that condemn the countries involved to very poor economic outcomes. Even in peaceful states however one finds badly regulated competition where one group in a society through poor regulation coercively dominates and extracts wealth from others. This can also condemn countries to prolonged periods of peaceful but poor economic performance.

It all depends on how one defines competition. Competition is complex, multidimensional and subtle, and not necessarily a good thing, competition depends on institutional context and can thus take many forms. A simple-minded regulatory approach that focuses solely on *within market rivalry* or the number of firms in a market, or market shares, as a measure of competition or rivalry is quite simply dangerous. This view tends to be based on a simple concern or belief that unless there are many firms, each with small shares, and/or low costs to switching there is weak rivalry and competition. Such a simple focus on "within market" rivalry, or number of firms or market shares and switching can lead to damaging competition law and policy that targets large successful firms, with excessive coercive state intervention in the property rights of such firms with large market share or "dominance" to the detriment of consumers in the long term. This will have adverse effects on consumer welfare and economic growth over time for a number of reasons.

- First of all economies of scale (including network effects) and economies of scope may mean it is best for consumers to have only a few firms operating in related markets that are very large, and appear dominant. To intervene in such firm's property rights, including their contract terms such as access terms, and pricing, and their partnerships

and mergers or acquisitions will punish them for being successful, reduce incentives or deter competition to fully exploit opportunities for economies of scale and scope, thereby harming consumers in the longer term.

- Second the fact a firm may dominate a market in terms of market share does not mean they have market power, or scope to abuse market power, as this may be counteracted by many other market realities like counter-veiling consumer or supplier power, scope for other large firms in their market expanding, and/or scope for new entrants to enter the market, and the incentives of even the largest firms to create value they can share in with consumers.

Simple concepts of competition can thus lead to competition law and policy interventions that distort, crowd out or reduce other forms of competition or rivalry, involve uncompensated takings of private property rights, and as a result lower benefits to consumers over time and thus economic growth.

As noted the CMA needs to stay focused on the fundamental point that what is in fact primarily needed for competition to create optimal consumer benefits over time is **a stable system of tradable property rights that defines sanctioned relationships between people with respect to scarce resources**. **These property rights need to be protected from uncompensated takings and other misuses of the coercive powers of the state – *including by competition authorities and regulatory agencies as branches of executive government.***

The Role and Importance of Private Property Rights

Well defined and allocated private property rights fundamentally solve the problem of competition for scarce of resources by self-interested individuals. Property rights enforced by rule of law do this by defining sanctioned relationships between people with respect to scarce resources. The three key rights of property are the right to control use (e.g. access terms), the right to income (e.g. prices) and the right to transfer the foregoing rights (by contract). The last right implies that property rights are fully tradable, and it is this that forms the basis for exchange in markets and more efficient outcomes. Tradable private property rights can ensure efficient allocation of resources. Otherwise, why pay for something if you can steal them? Similarly, with tradable private property rights, why keep something if someone else values it more and are willing to pay enough for the right? Exclusive private property rights also ensure investment and innovation. Otherwise, why invest or innovate and create something new if someone can appropriate it later?

Exclusive and tradable private property rights thus structure and harness competition to generate consumer benefits over time and socially efficient outcomes. They provide the fundamental basis for exchange, investment, innovation and as a result competitive markets and economic growth. As we shall see it is **the primary fundamental duty of the CMA** to ensure the ongoing protection of private property rights, and **a high burden of proof** should thus be on

the CMA to show that competition law and policy interventions that inevitably involve uncompensated takings of property rights can make things better.

Protection of strong ***intellectual property rights (IPR)*** for example are more important for sectoral growth than competition law and policy that pursues other goals, indeed the latter is even posing threats to IPR of late. There is a growing tendency for competition law and other legislation often based on Government Growth policies to be used to undermine IP rights. For example, copyright's performance excels in comparison to other types of IPR in terms of the magnitude of investment it attracts, the growth rate of that investment, and economic and job growth associated with it. Copyright's role in economies (including in software) appears to be more prominent than that of other kinds of intellectual property (IP). [25] Although copyright appears to be the type of IP with the most impressive economic performance, it is also undergoing more statutory challenges to its role than other IP types. This is further evidenced in the CMA's conclusions in its PDR on Microsoft's licensing practises discussed further later.

It is further important to note that privately owned firms or ***proprietary firms*** are a key feature of a well-defined property rights systems that forms the basis of well-functioning markets and promotes consumer benefits over time. Proprietary firms serve to solve many of the problems that can be associated with markets that are of concern to the CMA. Proprietary firms are best understood as a nexus of contracts that can take different forms (sole proprietor, partnership, private corporation, public corporation etc). Economic theory suggests proprietary firms can offer lower transaction costs, (including lower switching costs), compared to markets and therefore can offer a more efficient means to organise exchanges and transactions. Proprietary firms therefore in fact compete with and substitute for markets as means of exchange and thereby enhance the competitiveness and efficiency of markets. The private ownership of the firm creates an owner and central contractor concerned with the residual left after goods are sold and the costs of suppliers are met. This owner thus has a clear incentive to ensure allocative, productive and innovative efficiency within the firm. This means the owner has an incentive to avoid the usual problems firms are accused of, for example they have the incentive to root out *allocative inefficiency* including allocatively inefficient pricing through better pricing (why leave deadweight losses in a market even as a monopolist?). The owners(s) further have incentives to root out X-inefficiency, or *productive inefficiency* - and to promote *dynamic efficiency* or invest in production and innovation that has the highest expected rate of return. The *tradable right to ownership of a firm* further supports a *market for corporate control* that provides the mechanism by which less efficient owners and managers can be replaced.

Many of the issues raised as causes for concern in competition law are in fact best addressed by proprietary firms. Proprietary corporations that are incentivised by its shareholders and the market for corporate control to maximise shareholder wealth and therefore profits, provide a fundamental engine for growth in consumer benefits over time - or economic growth. For example, proprietary firms with private ownership and control have the incentive and means to

[25] See Oecd Report "Inquiries into Intellectual Property's Economic Impact" (2014) Chapter 1 page 7; see page 30 paragraph 59

internalise *the externalities from economies of scale* in production and consumption that would otherwise be lost - including *internalising positive network externalities*. The problem with a *positive network externality* is that people may free ride on the beneficial actions of others, or correspondingly not have an incentive to take a beneficial action in a market context. When these exchanges are brought within the proprietary ownership structure of a firm, network externalities are internalised and can be better managed and optimised. Proprietary ownership and control internalises network externalities, and turns them into *network effects* that energises the efficient growth of a firm for the common good. This includes the benefits and *externalities of learning* by doing in teams. To then have regulation triggered by a concern about the existence of *network effects and "tipping"* within firms is thus ultimately counterproductive to realising greater consumer benefits over time. *Network effects* are better realised within a vertically or horizontally integrated firm than in a market. Proprietary ownership and control also incentivises *product and price differentiation* to better meet the diverse needs of consumers over time.

The protection of private property rights of firms then needs to the primary goal and duty of the CMA to promote healthy competition, well-functioning markets and consumer benefits over time. In order to fulfil its statutory duty and promote consumer welfare over time the CMA fundamentally needs to protect property rights, including the right or freedom to contract, and the rights of proprietary firms to run their own businesses. This has to be its primary focus in performing its statutory duty. Uncompensated takings of property rights through regulation by the CMA can have serious, or substantial adverse effects on competition, market exchange, investment, and innovation that ultimately adversely affect consumers through time and particularly in the future. It should thus not rush as it sems to propose to use the powers conferred by the DMCAA within the first few months of them coming into effect.

It is the fundamental duty of the CMA to ensure the ongoing protection of property rights (including freedom of contract, and private proprietary corporations), This is fundamental to achieving the CMA's objective to promote competition, both within and outside the United Kingdom, for the benefit of consumers. The law more generally, but including the Enterprise Act governing the CMA requires the CMA to first of all protect the fundamental rights of market participants, especially the right to property or property rights (and by implication freedom of contract) of customers and suppliers (including private corporations). The legal protection of property rights goes as far back as the Magna Carta and is of the same standing as rights to liberty and life and other fundamental rights protected by due process.

The Role and Limits of Competition Law and Policy

It is fair to say the CMA's central role in competition law created by legislation involves the CMA as part of the executive branch of government using the coercive powers of the state to take property rights. Under competition law legislation the CMA has the power to interfere in the three key rights of property, namely the right to control use (e.g. access terms), the right to income (e.g. prices) and the right to transfer the foregoing rights (by contract).

The CMA quite simply does not objectively acknowledge or clarify the opportunity and threat the CMA therefore poses to optimal growth in consumer benefits through this role in competition law and policy in taking the above rights without compensation. The CMA can be a double-edged sword. The CMA has the opportunity to be an agent that protects market participants and investors from uncompensated takings of private property rights, or it can instead be a threat, and be an agent that enables uncompensated takings of private property rights. The former provides a path to economic growth, the latter a path to continued malaise and underperformance in terms of economic growth

Competition law began in the regulation of the misuse of the coercive powers of the state to grant legal, and fiscal advantages to specific firms. In the earliest competition law case in the common law the creation of a legal monopoly by the Crown or executive action was found to be unenforceable as contrary to public policy, due to the clear adverse effects and costs to the public it created, unless it had demonstrable offsetting public benefits. [26] Competition law thus began with court-imposed limits on the scope for Crown or *executive Government failure*, [27] or with the courts regulating or limiting the Crown or executive government's power to create legal and or fiscal monopolies. This limitation can be understood to distinguish between private and public goods. There was seen to be **no** reasonable grounds for Crown or *executive Government* to use the coercive powers of the state to offer legal and fiscal support, or protection of a commercial firm to deliver purely *private goods* that can otherwise be delivered in a private market governed by private property rights. Early competition law and policy thus limited executive *government failure* by limiting uncompensated coercive takings of the right to trade, and the consequent adverse effect on competition that legal monopolies and fiscal supports to commercial firms in private markets can have.

The only legitimate purpose for government legal and fiscal support, or protection of a commercial firm was and is still understood to be to deliver *public goods* that cannot otherwise be delivered in a private market governed by private property rights. Compensation however still had to be paid for the taking of any property rights (using for example eminent domain powers) and the behaviour of the legal monopoly can be regulated later by the courts under public law. In the case of public goods then any takings or limitations of private property rights (e.g. to trade) to support a public good has to be compensated and ultimately paid for out of taxation levied for the purpose of funding such public goods, with any adverse effects of limitations on competition addressed ex post by the courts.

[26] This role of the courts and competition law thus goes back to the famous 1602 case Darcy v Alleinr 74 ER 1131, an early landmark case in English law, establishing that the grant of exclusive rights to produce any article was improper reported by Coke. The case has since come to be known as The Case of Monopolies, and the arguments set forth therein have served as the basis for modern antitrust and competition law.

[27] Not market failure – but government failure, as the court decision was clearly directed at and limited the executive government 's power to take the property rights of those who might otherwise have entered the market but for the legal monopoly (including the property rights of the plaintiff in the case).

Competition law and policy was later extended to involve court-imposed limits on court enforcement of promises in contracts that restrain trade or competition – thus limiting the scope for *judicial failure.* [28] Competition law and policy thus later developed as an antidote to potential *judicial failure* in court enforcement of contract promises that restrained trade further limited the adverse effects on competition of uncompensated takings by the state of property rights to trade of commercial firms in private markets.

The above original and core roles of competition law and policy thus served to address the potential weakening and distortion of healthy competition that coercive state intervention in markets for goods and services can entail (executive or judicial).

It is fair to say however that the role or domain of competition law and the CMA has and is increasingly being expanded (often using empirically untestable or untested legal and economic theories) to the point that it now seriously threatens market participants and investors with extensive uncompensated takings of private property rights ultimately to the detriment of consumers- particularly in the tech sector under the DMCC. This has the effect of undermining prospects for growth. The CMA gives no indication of an awareness let alone estimate of the extent of this risk poses to economic growth. The CMA instead seems dismissive of this risk and further seems to elaborate an ever more expansive role for the CMA that is likely to lead to further misguided over-reach by the CMA - all based on vague or ill-defined terms, concepts and empirically untestable or untested legal theories and analysis.

As noted the CMA instead seems to be simply focused on ill defined concepts of competition as if it were an objective in itself, or a good thing in itself that inevitably tends to greater consumer benefits without adequately defining competition appropriately. The CMA thus fails to mention the importance of institutional context in fostering socially productive market competition, in particular the importance of the protection of property rights. The CMA at best tends to define competition simply as rivalry, which tends to lead to a focus on within market rivalry, and therefore market shares as a measure of competition. These assumptions that competition is good in itself, or inevitably leads to consumer benefits, and that competition can be defined as in market rivalry, and measured using market shares tends to lead to a more interventionist stance, leading in turn to the misguided targeting of large dominant firms with high market shares, and uncompensated takings of their property rights by the CMA, all ultimately to the detriment of consumers and economic growth. Using this approach the CMA risks shifting focus from the *benefits to consumers* from protecting well-defined property rights from uncompensated takings, to promoting an ill-defined notion of competition.

The Counterfactual (or Benchmark)

[28] This again clearly limited the court's power to enforce promises that in effect take the property right to engage in trade, or enter a market owing due the restraining effect of legally enforcing a promise, that was otherwise not self enforceable, and had no redeeming public benefit.

Digital markets, and the large technology companies the CMA now proposes to regulate using the DMCCA have evolved to this point owing to the legitimate and highly evolved system of private property rights that support them, and as a consequence the high rates of innovation, and investment, and rapid growth in markets and consumer benefits that we have and continue to see in digital markets.

The underlying *counterfactual* or "null hypothesis" or working hypothesis should therefore be that the markets being investigated are competitive or exhibit workable competition that benefits consumers *requiring no further regulatory action*.

Unless the CMA can present a reasonable theory and strong evidence to refute the null or working hypothesis that the market is competitive the investigation should end, and certainly no regulation, or what the CMA calls "proposed remedies" should be considered.

As we shall see the CMA in its guidelines proposes to operationalize this approach using the theoretical counterfactual or benchmark of a "well-functioning market" (WFM). The CMA therefore needs to identify reasonable evidence from the actual market it is examining that refutes the hypothesis or counterfactual that the actual market is competitive or a WFM.

If a *reasonable* case can be made to refute the hypothesis that the market is competitive, or a WFM then further investigation can proceed. The counterfactual then changes however to whether, and if so, how can regulation improve matters compared to the current market? This latter stage involves an empirical based *comparative institutional test*. How can proposed new regulation improve the operation of the market by specifically removing and features with an AEC, without introducing even worse market features and/or outcomes in terms of adverse consumer benefits? In other words what are the costs and benefits of regulation compared to the current market?

The relevant statutory provisions of Enterprise Act (2002) ("The Act") s134 thus confirm that consistent with this in short the CMA has to prove or show that there is a "feature, or combination of features of a relevant market"[29] that have "an adverse effect on Competition"[30] (AEC) "or a detrimental effect on customers or future customers."[31] – Not offset by "any relevant customer benefits of the feature or features" [32] that are "unlikely to accrue without the feature or features concerned"[33] "within a reasonable period" [34] This needs to established before the CMA should even contemplate uncompensated takings of property rights.

[29] section 134(2)
[30] section 134(2) of the Act
[31] s134(4) of the Act
[32] s134(7) of the Act
[33] s134(8)(b)(ii) of the Act
[34] s134(8)(b)(i) of the Act

But what exactly is meant by the CMA when it refers to a well-functioning market (WFM) counterfactual, and how does it apply it in this case – in short has the CMA defined the WFM counterfactual, and applied it appropriately in this case?

CMA View

How then is the CMA to prove that there is a "feature, or combination of features of a relevant market"[35] that have "an adverse effect on Competition"[36] (AEC) "or a detrimental effect on customers or future customers."[37] – Not offset by "any relevant customer benefits of the feature or features" [38] that are "unlikely to accrue without the feature or features concerned"[39] "within a reasonable period" [40]

In Chapter 8 Paragraph 8.4 page 479 of the PDR the CMA notes that it needs a counterfactual or benchmark to identify

> "features or combination of features of the market that prevent, restrict or distort competition thereby giving rise to an AEC(s) we have to have
> a benchmark against which to determine how the market may be judged to be performing"

This is just a starting point. The CMA has however failed to elaborate a sound methodology and clear and consistent approach to defining what it calls its benchmark, or what is most often called the counterfactual "against which to determine how the market may be judged to be performing".

Instead just within the short period it has been working on the CMI the CMA has flip flopped been two approaches which in each case it has failed to offer clear guidance on. This lack of clarity and consistency creates enormous fundamental so called "Knightian" uncertainty for market players. It ripples through all the chapters and conclusions - and markets. The CMA needs to slow down, focus and develop a more coherent and sound approach. This does not require a report extended to 513 pages and 23 appendices.

The core incoherence and time inconsistency of the CMA's work on the cloud service market is apparent in the way it has flip flopped between two approaches to defining the counterfactual, that I call:

- A "Features of a market approach" found in statute and CMA guidelines
- An "aspects of competition approach" found only in its guidelines

[35] section 134(2)
[36] section 134(2) of the Act
[37] s134(4) of the Act
[38] s134(7) of the Act
[39] s134(8)(b)(ii) of the Act
[40] s134(8)(b)(i) of the Act

I address what we know about these two approaches and expand on and explain the above points in my comment below

Comment

Taking each of the two CMA approaches in turn.

- The Features of a market approach

Given the legislation talks of "features of a relevant market" that have AEC's, one presumes the CMA is required to define those features of a market that have AEC's. It proposes to do this through a WFM counterfactual or benchmark. In Chapter 8 Paragraph 8.4-8.7 pages 479-470 of the PDR however the CMA elaborates its approach to the WFM counterfactual or benchmark as follows

> 8.5 In the absence of a statutory benchmark, we use the benchmark of 'a well-functioning market' to mean one that ***displays the beneficial aspects of competitio***n, rather than an idealised, perfectly competitive market. The benchmark will generally be how we envision the market without the features that are identified as harming competition.

Before proceeding with the main problem with this paragraph 8.5 I want to park two quick issues as an aside.

- First the CMA's claim in the last phrase of the first sentence that it does not rely on "an idealised, perfectly competitive market" in the PDR is not in fact true, as we show below, it often reverts to an idealized perfectly competitive market *to evaluate features of a market*.
- Second the final sentence in the above paragraph that "The benchmark will generally be how we **envision** the market without the features that are identified as harming competition" poses two problems with the CMA's methodology.
    - First is the unpredictability market players face with the CMA's "envisioning" approach, or trying to second guess how the CMA might "**envision** the market". To envision the market, sounds more like a creative than a scientific approach to regulation. The CMA can "envision" whatever it wants, and make errors, and create fundamental uncertainty, if the CMA does not adopt a testable, empirical or scientific approach, and fails to offer a clear, coherent **and consistent** guidance on how it defines the features of a WFM - or by comparison features that have an AEC.
    - Second is problem that the definitions of WFM and AEC implied in the second sentence are circular or defined in a tautological fashion.

1. The benchmark or WFM counterfactual is defined as not having the AEC features, or "the features that are identified as harming competition."
2. While the AEC feature is defined as "harming competition" - which takes us back to the above definition of a WFM, in order to isolate and identify what feature(s) are different between the WFM and actual market that may be harming competition.

Identifying an AEC's harm to competition requires a comparison with competition in the WFM benchmark counterfactual – but the WFM is defined as involving the absence of AEC features – so this is circular – and its' hard to know where to start in this, and it is impossible in the end to find a clear landing point on fundamental definitions. This adds to fundamental regulatory uncertainty.

Moving on, and more generally this paragraph 8.5 reveals a fundamental flaw in the CMA's overall methodology - the CMA quite simply fails on the critical issue of defining a coherent counterfactual or benchmark on a consistent basis. This is not remedied elsewhere in its PDR, nor in the CMA's guidelines that it cites, nor in other documents published during the whole CMI where it has addressed this issue – if they are all read together. Indeed, problems in its methodology outlined in the above statement are only compounded when reference is made to other published materials of the CMA as outlined below.

First of all, as noted it is of considerable concern that the definition in paragraph 8.5 above is different from the language of the statute, which refers to **features** of markets not "**aspects** of competition", and also different to that used in the CMA's 2013 Guidelines on Market Investigations (GMI) which in Paragraph 30 in fact references market "features" affecting competition, not "aspects of competition" where it states

> 30 The Act does not specify a theoretical benchmark against which to measure an AEC. In its market investigation reports the CC uses the term 'a well-functioning market' in the sense, generally, of ***a market without the features causing the AEC***, rather than to denote an idealized, perfectly competitive market.

The reference to "features" of a market in paragraph 30 above is furthermore consistent with the statute as outlined earlier. This statutory focus on market features and their effects on competition also offers an easy solution to defining AEC, which is that the CMA take the simple step of coherently and exhaustively, defining, explaining defending and justifying the features of a well-functioning market (WFM) or counterfactual that it chooses to rely on.

In short, if the features of a WFM were listed – perhaps incomplete and subject to addition and deletion at rare times, with explanations, and time to review- then the listed features of a market could then be used to more readily identify features of a market that might create an AEC as involving either

- The absence of a feature of a WFM and/or (more contentiously)

- The presence of a feature not found in an WFM

As noted earlier there are three key features of a well-functioning market which could be easily listed and agreed immediately as part of the underlying common law, and that the CMA needs to focus on. There are three clear and fundamental features of a WFM I have discussed already that the CMA rarely mentions and fails to focus on

- First whether the market has a well-developed underlying system of private property rights that supports i) a market involving the exchange of private goods, together with ii) proprietary firms competing in the market, and iii) free entry by new entrants who may seek to join. If so, this system of well-defined property rights is clearly a critical feature of a well-functioning market. If such a system of property rights is missing or property rights are ill-defined or heavily eroded by regulation there will be market failure, or adverse effects on competition as outlined earlier. The CMA has a duty to protect the property rights and not threaten to nor engage in uncompensated takings of private property rights if it is to avoid adverse effects on competition. Like Ulysses and the sirens, the CMA has to tie itself to a mast, to prevent itself being a feature, or originator of features of a market that has an adverse effect on competition.
- Second whether there is, and if so, the extent of any legal monopoly or other legal and/or fiscal supports to incumbent firms, that entail uncompensated takings of private property, and act as barriers to entry? The presence of these features is NOT a feature of a well-functioning market, it is instead a feature that is almost certain to have adverse effects on competition. The CMA needs to focus primarily on UK markets that exhibit high degrees of legal and fiscal supports to incumbents that pose barriers to entry (e.g. rail, energy, water, health etc.). The CMA for example shares competition law responsibility for many such markets with a number of utility and other regulators. Digital markets by comparison do not exhibit major legal or fiscal barriers to entry
- Third whether there are any contracts that are an unreasonable restraint of trade? If so, this is a NOT a feature of a well-functioning market, but is a feature that may have an adverse effect on competition, which the parties will need to justify in terms of their private and the public interest, and if they can't consideration may need to be given to what can be done to sever the restraing terms from such contracts, or quite simply make them unenforceable at law? Given the competitive nature of digital markets and low barriers to entry as outlined above, it sems unlikely that unreasonable restraints of trade would survive or be a problem, as they would not be self-enforcing.

Thus, where the answer to the above questions are respectively "yes", "no", and "no", one has a WFM. Otherwise, one has features that are very likely to have adverse effects on competition (AEC).

The CMA in its PDR report instead of focusing on defining and explaining the features of a WFM and/or features of a market that have adverse effects on competition coherently and in depth,

relies on concepts and methods that are not clearly defined, not empirical based, and not testable nor found in its own legislation and that are further clearly contradicted by its own guidelines in paragraph 30 above that it is meant to follow.

- The Aspects of Competition Approach

The CMA however at least used the language referring to market features found in paragraph 30 of the CMA's 2013 GMI in its Updated Issues Paper in 2024, and still explicitly refers to paragraph 30 of the CMA's 2013 GMI in footnote 2060 to Paragraph 8.5 above of its PDR.

It is very worrying however that the approach of the CMA in paragraph 8.5 now appears to have involved a conscious decision to depart from the language of its legislation and the terms of paragraph 30 of its 2013 GMI to rely on the "aspects of competition approach" – or what is more confusing perhaps is that it relies on both approaches- it is just not clear.

The CMA at the same time provides no useful guidance on what it means by "beneficial aspects of competition" in the PDR. Instead, the PDR refers in footnote 2060 to paragraph 8.5 of the PDR to paragraphs 10-12, CMA's 2013 GMI "for a description of the beneficial aspects of competition that would typically expect to see in a market." But the term beneficial aspects of competition is not in fact even used at all in these paragraphs of the 2013 GMI - let alone clearly defined. Rather the paragraphs appear to just list to a number of performance or outcome features of markets.

Strangely enough the language of paragraph 8.5 is however found in the CMA's 2013 GMI but not in Paragraphs 30 or 10-12 but rather in paragraph 320, but the CMA does not refer to paragraph 320 of the 2013 GMI in the PDR, which reads

> 320 In the absence of a statutory benchmark, the CC defines such a benchmark as 'a well-functioning market' (see paragraph 30) ie one that displays ***the beneficial aspects of competition*** as set out in paragraphs 10 to 12 but not an idealized perfectly competitive market *CMA's 2013 GMI* paragraph 320

Ironically the "aspects of competition" that the CMA refers to here (again ostensibly to be found in paragraphs 10-12 of the 2013 GMI) appear to be clearly exhibited by digital markets. It is thus useful to quote paragraphs 10 to 12 of the 2013 GMI in full and then illustrate how Digital markets meet the performance aspects mentioned by the CMA in those paragraphs as follows.

> 10 Competition is a process of rivalry as firms seek to win customers' business. It creates incentives for firms to meet the existing and future needs of customers as effectively and efficiently as possible—by cutting *prices, increasing output, improving quality or variety, or introducing new and better products, often through innovation; supplying the products customers want rewards firms with a greater share of sales*. Beneficial effects

> may also come from *expansion by efficient firms and the entry into the market of new firms with innovative products, processes and business models, and the exit of less successful ones*.

Digital markets clearly show these italicized performance characteristics, especially the so called "cloud services" market, which is itself a relevantly recent innovation, and which is now supporting innovative downstream market developments in AI. As the CMA notes the "cloud services" market further exhibits high levels of investment and is growing at over 30% per annum, reaching 9 billion in sales. We have also seen efficient firms expand, and others exit with ongoing jostling and new entry. The cloud services market clearly exhibits all the beneficial aspects of competition referred to in paragraph 10 and should therefore be treated as competitive or exhibiting workable competition it is clearly a well-functioning market using the CMA's own criteria that benefits consumers *requiring no further regulatory action*.

A further potential "beneficial aspect of competition" in a WFM is mentioned in paragraph 11 as follows

> 11. In some instances firms compete for a market, rather than in a market, for example, by competing to be the first to claim a patent in a key area, the first to achieve scale in a new market, or to win a public procurement contract or franchise to supply a public service.

This is what one finds in digital markets, intense competition or contestability in markets, with a large number of very large corporations competing globally for global digital markets that exhibit very lower entry barriers beyond access to a computer, programming skills, "friends and family" and global financial markets - and a garage or bedroom. This competition is more intense than any in history involving all nations of the world, and investment, innovations and competition by firms on an unprecedented scale.

The same is true of aspects of competition identified in paragraph 12 as follows.

> 12. Vigorous competition between firms also fosters economic growth, as firms respond to competitive pressure by striving for efficiency and directing their resources to customers' priorities. Customers have an important part to play in stimulating rivalry between suppliers by making informed decisions which reward those firms that best satisfy their needs or preferences. Markets work best when both the supply side (the firms) and the demand side (the customers) interact effectively.

All the above "aspects of competition" or "features" of a WFM outlined above by the CMA in paragraphs 10-12 of its 2013 GMI are present both in digital markets such as cloud services market, and in the large technology companies the CMA now proposes to regulate using the DMCCA. The competition between large tech companies in the cloud services market has evolved successfully to this point and will continue to, owing primarily to the legitimate and highly evolved system of property rights that supports them, and the low barriers to entry in

digital markets (including the absence of legal monopolies and other legal or fiscal privileges or supports found in more moribund industries regulated by utility regulators). As a consequence of these foundations, the world has seen high rates of innovation, and investment, and rapid economic growth in markets with enormous consumer benefits, that we will continue to see both in markets (like cloud services), and by the large tech firms in digital markets. As large as the big tech companies may seem by historic standards, they are tiny by future standards - and even small by today's nation state standards, with even the largest tech corporation having revenues of equivalent to the GDP of only a small-developed state like NZ of around 250 Billion. The scale of the USA and UK economies dwarf these corporations.

The public, governments and the CMA need to stop being frightened by "beneficial aspects of competition" that have been and are being exhibited by fast growing innovative global digital markets, that constantly challenge and surprise with new consumer products, new ways of doing business, larger and larger successful corporations that invest previously unheard of amounts of money in highly risky commercial ventures (many of which do not succeed), delivering digital services that customers are clamouring for, at falling prices and increasing quality, and in a state of constant surprise, expectation and excitement. The new and unknown in this case is not bad or threatening – it is a good, and a global opportunity - that regulation involving unpredictable and uncompensated takings of property rights, and higher barriers to entry, only poses an existential threat to.

Based on performance then, or "beneficial aspects of competition", the underlying WFM *counterfactual* is being outperformed – the "null hypothesis" or working hypothesis on the cloud services market should therefore be that the markets being investigated are competitive or exhibit more than workable competition that benefits consumers *requiring no further regulatory action*.

Conclusion

The CMA needs to establish a more coherent, scientific, empirically based, testable, predictable and consistent approach to evaluating competition in markets. A sensible application of even the two confusing approaches it appears to have adopted however (i.e. the "features of markets" and the "aspects of competition" approaches) shows that digital markets in general and so called "cloud services" markets in particular do not exhibit features or aspects that involve adverse effects on competition and/or more importantly harm for consumers

In brief there are two main problems with the current CMA's approach, that I will elaborate, revisit and illustrate throughout this submission

The first and primary problem as noted is that the legislation requires the CMA to identify **features** of the market that have AEC's before it can intervene. The EA02 also provides a definition of relevant features of a market, referring to the structure, (or aspect of structure) of

a market, or the conduct of suppliers, or customers in a market.[41] To identify those features of a market that have AEC's however one needs a counterfactual or benchmark. The CMA proposes to use a WFM counterfactual or benchmark "against which to determine how the market may be judged to be performing" The CMA's PDR then however defines the WFM counterfactual or benchmark, as "one that displays the beneficial **aspects** of competition". This ignores the language of the statute. As noted already this is not helpful as it begs the questions what are "the beneficial aspects of competition"? And are they different from features of a market identified in the Statute? If they are then one has to:

- First identify the beneficial aspects of competition (neither the statute not the CMA[42] clearly defines or identifies "beneficial aspects of competition")
- Second use well defined beneficial aspects of competition to identify a WFM,
- Finally use the WFM to define features that may have an AEC in the actual market.

Logically the above implied approach of the CMA does not make a lot of sense, unless the CMA is suggesting that the "beneficial aspects of competition" in a WFM are simply just be the opposite of "features ….giving rise to AECs" in an actual market. If they are opposites one could then avoid a proliferation of words if one spoke of

- *features of markets* on the one hand having *adverse effects on competition*, and
- *features of markets* on the other hand having *beneficial effects on competition*

The fundamental problem then is the CMA cannot fulfil its statutory duty and identify features of a market that have an adverse effect on competition (AEC) if it does not first coherently and exhaustively define the features of a well-functioning market (WFM). In short however the features of a market that might create an AEC have to involve either

- The absence of a WFM beneficial aspect
- The presence of a feature not in an WFM

So the place to start is with defining the features of a WFM. As noted, I identify three

- First system of private property rights supporting a market for private goods
- Second the absence of legal monopolies or other legal privileges or fiscal supports for incumbent firms and
- Third the absence of contracts that unreasonably restrain trade

The Idealised Competitive Market Nirvana fallacy

The CMA often seems to engage in a nirvana fallacy,[43] or adopt an idealised, competitive market counterfactual when it does in effect to list features of a well-functioning market (e.g.

[41] Section 131(2) EA02

[42]

[43] The nirvana fallacy was given its name and defined by Harold Demsetz as "The view that … implicitly presents the relevant choice as between an ideal norm and an existing "imperfect" institutional arrangement. This nirvana approach differs considerably from a comparative institution approach in which the relevant choice is between alternative real institutional arrangements" …"The nirvana

involving many suppliers and many buyers with no transaction costs). The CMA in previous issies papers and working papers makes reference to features like *"customers to be able to choose between a range of alternatives"(*how big a rang?) *"Lower barriers to multi cloud and switching"* – (lower than what*?*) - *"Lower barriers to entry?"* – (lower than what?). These underlying ideals, sentiments and beliefs in favouring a market with many suppliers and many buyers, and zero transaction costs (e.g. switching costs) recur in the PDR. Of course customers and competitors of firms want more and better - and an easier life – preferably for free – but resources and time are scarce and trade-offs exist, the question is what is optimal or efficient, i.e. what is in the long run interests of consumers? The underlying problem is that sometimes "a range of alternatives", or "lower barriers to multi-cloud and switching" and "lower barriers to entry" may not be feasible, or not optimal or not efficient, and *not in the interest of consumers*. The CMA outlines things it "might expect" but are they reasonable, and efficient in the circumstances of the case?

The statements above and others in the PDR all expose an underlying implicit tendency of the CMA to list and rely on *features of* an idealised competitive market or idealised counterfactual (e.g. involving many suppliers and many buyers with no transaction costs). Why would one expect these features in a well functioning market? The question should instead be whether features like substantial barriers to entry exist in the current market– that is what has to be proved to justify the investigation - and if so then can they be lowered- or mitigated - and if so how - is it feasible? The latter requires reasonable evidence not only that the market is not competitive because of barriers to entry, but then comparative institutional analysis where the current market and real world regulatory alternatives are compared, relative to the consumer benefits they generate, or the CMA's objective, rather than compared to a nirvana market, using associated nirvana analysis (e.g. involving many suppliers and many buyers with no transaction costs).

The CMA says it rejects "an idealised, perfectly competitive market" counterfactual but fails to identify the criteria or derive, define, elaborate and consistently use a "well functioning market" (WFM) benchmark or counterfactual relative to consumer benefits. As a result and as I show below, in applying the AEC test the CMA implicitly falls back into comparing existing market features to an ill defined idealised competitive market (e.g. involving many suppliers and many buyers with no transaction costs) as its WFM counterfactual.

What I propose instead is a *comparative institutional approach* that assesses which alternative real institutional arrangement contributes the greatest net consumer benefits. In this approach one may use an ideal norm to provide standards against which one assesses divergences in the current market, and all practical regulatory alternatives, and select as efficient that alternative

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approach is much more susceptible than is the comparative institution approach to committing three logical fallacies–the grass greener fallacy, the fallacy of the free lunch, and the people could be different fallacy. " Demsetz, Harold (1969). "Information and Efficiency: Another Viewpoint". The Journal of Law & Economics. 12 (1): 1–22.

which seems most likely to minimize any divergence. In a comparative institution approach however one cannot avoid a fulsome treatment of regulatory risks and costs, or regulatory failure. One should not assess the market against an ideal competitive market and not apply the same standard to regulatory intervention and its **full costs and benefits,** including regulations adverse effects of competition and property rights.

When the CMA applies its AEC test the CMA reveals that its unclear tautological definition of its "WFM counterfactual" leads the CMA to implicitly actually use an idealised market as its WFM counterfactual. The CMA thus tends to identify AEC features as discrepancies between an ideal market (e.g. involving many suppliers and many buyers with no transaction costs) and the real market, and if such discrepancies are found, the CMA deduces that the real market is inefficient, and needs to be regulated.

Thus at numerous points when the CMA turns to apply its AEC test, it implicitly compares the existing market to an idealized market (e.g. involving many suppliers and many buyers with no transaction costs). There are at least five noteworthy features of markets that the CMA treats as features of a market that have an adverse effect on competition, because it adopts an idealized competitive market as its implicit counterfactual for selecting features that pose AEC, that the CMA therefore fundamentally bases its case for regulation of a market on, that are infact befenicial features of markets (WFM) - but that the CMA thereby puts in jeopardy, as I discuss further below, namely:

1) Economies of scale
2) Economies of scope
3) Product differentiation
4) Transaction costs (or switching costs) and
5) Learning by doing

This approach makes the CMA inherently *antagonistic to economies of scale* and the other features of a competitive market listed above, and outlined further below . In short the CMA thereby commits the "*Nirvana fallacy"* – it assumes an ill-defined idealised competitive market (IM) is feasible, and desirable, and that it is costless for the CMA to regulate to achieve an IM/WFM - when it is not. The comparative institutional approach I proposed above avoids this nirvana fallacy.

A key fundamental question then remains - what are the AEC features of any actual market that may be said to prove a departure from a competitive market, and can they be addressed or remedied in a way that enhances consumer welfare? The CMA is not clear what is an AEC, as it is not clear what a WFM is, and it is not clear how the CMA believes it can regulate so as to achieve a well functioning market - or a "*market envisioned without the features that are identified as harming competition".* Envisioning such a market and achieving it are two different things. One has to factor in the costs and benefits of regulation and regulatory failure. As a result of regulatory failure it may not be feasible to achieve the "envisioned" WFM.

The CMA however does interestingly note circumstances where indeed there may be reasons to depart from its general concept of a WFM at the outset, which may be helpful, or avoid the above list of beneficial features of a market being undermined by regulation - namely if

- The "features are intrinsic to the market but nevertheless have anticompetitive effects (as in the case of a natural monopoly)"

The point is unclear but may have some merit, with caveats, which we explore further in detail below.

The Intrinsic Market Features Exception

In Chapter 8 Paragraph 8.6-8.7 pages 479-470 the CMA identifies an exception to its well functioning market (WFM) counterfactual as follows

> 8.6 But there may sometimes be reasons to depart from that general concept, for example, if features are intrinsic to the market but nevertheless have anticompetitive effects (as in the case of a natural monopoly).2061
>
> 8.7 In summary, we use the term 'well-functioning market' to mean a market without the features, or, where they are intrinsic, the effect of these features, causing the AEC(s).

The CMA does not really define what it means by intrinsic features however. The CMA could be said to imply however that "intrinsic" features of a market are a *departure* from the CMA's idealised market or WFM, and yet *inseparable* features of the real market that are *of great benefit to consumers*. I therefore presume the CMA deems such intrinsic features as tolerable departures from the idealized WFM ultimately because of their benefits to consumers (without identifying them). This makes it unclear why they are treated as features or evidence of a lack of competition, or of harm to consumers in the first place. Yet the CMA in its applied work often critiques intrinsic (or inseparable and beneficial) features of a market, for having "anticompetitive effects", and then uses the latter asserted AEC to justify regulation, - without factoring in either the very pro-competitive and beneficial effects of the intrinsic features in the first place, or the costs and risks regulation pose to the intrinsic feature.

As noted are at least five noteworthy *features of markets* that appear to be "intrinsic", or inseparable and beneficial features of a market, that the CMA bases its case for regulation of a market on, and thereby puts in jeopardy, as I discuss further below, namely:

1) Economies of scale
2) Economies of scope

3) Product differentiation
4) Transaction costs (or switching costs) and
5) Learning by doing

As I outline in this and my earlier submission, the CMA recurrently and consistently in its Issues Paper, working papers and PDR relies on these inseparable beneficial features of a market as causing AEC and as a basis for regulation, when they are clearly inseparable from a competitive market, and very beneficial to consumers (or intrinsic to a competitive market) and are therefore intrinsic - and can be significantly harmed by the CMA's proposed remedies or interventions directed at them.

On the contrary however as noted above the CMA claims in the PDR

> 8.7 In summary, we use the term 'well-functioning market' to mean a market without the features, *or, where they are intrinsic, the effect of these features, causing the AEC(s).*

The last italicized phrase implies the CMA can isolate prove, separate and regulate an AEC from one of the above listed intrinsic features of a market. Now this is easy to state or envision, but impossible to achieve through the CMA regulatory tools under its older legislation or through the new DMCCA powers. There are two related problems

First the CMA basically leaves it unclear how one might define "intrinsic" and what is an AEC. We have already outlined what is wrong with the CMA's treatment of AEC and WFM. In intrinsic the CMA seems to imply it is referring to a natural, inseparable, and beneficial feature of a market. The CMA thus seems to correctly imply that a natural monopoly (and presumably therefore economies of scale) as an intrinsic feature does not offer the required evidence or reason for concern per se - or may not be a feature proving an AEC - which seems reasonable. Clearly however with a natural monopoly feature or fundamentally choices to pursue economies of scale (or pursue economies of scope, product differentiation, or minimise transaction costs, or learning by doing) it is best, optimal, or most efficient for consumers if the feature is retained, and therefore that decisions to pursue economies of scale (or pursue economies of scope, product differentiation, or minimise transaction costs, or learning by doing) are supported. In the case of a natural monopoly for example it is best if one firm serves a whole market, to ensure the full exploitation of economies of scale. So the existence of a natural monopoly cannot be used as evidence that a market is NOT competitive. It should be assumed instead that the underlying phenomenon of economies of scale drives or shapes strong competition for scale, or greater efficiency - and choices to pursue economies of scale (or pursue product differentiation, or minimise transaction costs, or learning by doing) delivers optimal benefits for consumers and ultimately gives rise to markets with large firms, and even a natural monopoly, all as an outcome of a highly competitive market, that is of great benefit to consumers. Thus large firms should not be treated as evidence refuting a competitive market hypothesis, or the focus or cause for concern per se, as that would adversely affect incentives. To do otherwise is to make regulation antithetical to healthy competition and healthy competitive outcomes - or a well functioning market. The CMA seems to contradict this first

point however later as we shall see below in its applied work, where it demonstrates antagonism to economies of scale that generate large firms as a feature of a market, and the other features listed above, and seems to treat the features as evidence refuting the null hypothesis that the market is competitive.

Second the CMA at numerous points in applying the AEC test appears to commit what I would also call partial analysis or the "cake fallacy" - or the fallacy that the CMA can "have its cake and eat it too" – or in this case that *it can have competitive market features - and regulate them too.* It quite simply does not fully recognize the fundamental nature and full impact of regulation as an uncompensated taking of property rights. This arises where the CMA seems to identify what it calls "intrinsic" features of a market that justify a departure from its idealised market or WFM. The intrinsic feature it cites in paragraph 85 is a natural monopoly – or more fundamentally economies of scale and large firms. The CMA later however appears to be antagonistic to economies of scale as causing "barriers to entry" and therefore uses economies of scale as a reason for regulation, ignoring the risks CMA regulation poses to economies of scale. In short the CMA assumes it can have the benefits of economies of scale (the cake), and regulate economies of scale out of a market, or eliminate them. At best it implies it can isolate prove, separate and regulate to surgically remove an AEC from one of the above listed intrinsic features of a market. In this regard it might also be said to be taking the "baby risk" or of throwing the baby out with the water, or the "sledgehammer risk" or of using a sledgehammer to crack a walnut, or the "golden goose fallacy" that one can kill and eat the goose that lays the golden eggs, and continue to collect golden eggs in the future. The CMA appears inclined to regulate intrinsic features of a market that are beneficial to consumers (economies of scale and large scale firms), assuming the benefits of the intrinsic feature (economies of scale) will not be harmed and will continue to exist. This is assuming one can have ones cake (benefits of economies of scale and large firms) and eat it too (or regulate and harm large firms through fines, and uncompensated takings of property rights of large firms), easily separate the baby from the water, use a sledgehammer to open walnuts, and kill the golden goose and continue to collect golden eggs. It does not refute the hypothesis that the cloud services market is a (well-functioning) market for private goods based on well-defined property rights with low barriers to entry, and it does not recognize that uncompensated takings of the private property rights of market players can have major adverse effects on consumers over time.

Under the Act the CMA should instead examine any existing market (with the above listed features) relative to what benefits it delivers for consumers (including future consumers), *subject to real world constraints,* or subject to real world "features" of markets and regulation. Thus

1. One should not ignore any clear benefits for consumers that "features" of a market may have - and/or "demonise" market features as having adverse effects on competition while ignoring their offsetting benefits. One needs to carefully analyse any "features" (e.g. economies of scale) for their full effects on consumers – don't "short change" it

2. One also needs to adopt a comparative institutional analysis, and compare the way the existing market performs (inevitably an already regulated market) against any proposed feasible regulatory alternative. One should avoid using disembodied and ill defined "well functioning market" as a comparator, and recognize regulatory failure as part of the problem for most markets, that should be a key focus of regulatory attention when assessing AEC
3. One should also not assume that any market feature that may have adverse effects could costlessly or simply be regulated away. Even though one might like to simply wish those features or their consequences away, one certainly can't regulate costlessly.

The five key "features" of markets mentioned above that the CMA tends to either ignore, demonise, and/or misinterpret the role and importance of, and underestimate the costs of CMA intervention when doing its assessment of AEC in its market investigation, as noted are

- *Economies of scale (in production and consumption/network benefits).* As noted the CMA s tends to ignore the scale of these benefits for consumers – and therefore the benefits to consumers from very large firms. It correspondingly ignores the diseconomies of decreasing scale, and harm to consumers through its' "proposed remedies" that take property rights off large firms without compensation, and favour firms that are too small to reap optimal economies of scale, which is inevitably likely to lead to too many firms and duplication of fixed costs, and forgone economies of scale and network benefits to the detriment of consumers.
- *Diverse Consumer preferences, and the benefits to consumers therefore of product differentiation*. The CMA regularly talks about product differentiation as leading to market power, and ignores their pro-competitive effects, and the scale of the benefits from product differentiation for consumers. This again leads the CMA to "proposed remedies" that involve taking the property rights of large firms without compensation that have clear adverse effects on this form of competition.
- *Economies of scope.* The CMA demonises economies of scope and again ignores the benefit to consumers of synergistically diversified firms - and the diseconomies of undiversified products and firms. Again leading to "proposed remedies" that involve uncompensated takings of the property rights of large firms, that have clear adverse effects on this outcome and source of competition.
- *Transaction costs,* or the costs of consummating exchange, and operating markets including the costs of search and of negotiation and enforcing contracts and the benefits to consumers of minimizing transaction costs, and therefore not switching or multi-clouding and for the same reasons the benefits of firms of vertical and horizontal integration. Again leading to "proposed remedies" that involve uncompensated takings of the property rights of large firms that have clear adverse effects on competition.
- *Learning by doing.* At several points the CMA explicitly or implicitly claims that learning by doing can lead to problems. For example although it may over time enable an incumbent firm to become more efficient, the CMA claims this will then therefore deter rival entry and expansion. This may be true but it's not an AEC. Similarly the CMA talks

about skills a firm acquires in a product like software as locking them in and causing an AEC. These conclusions and the implication that regulation is needed to reduce the incentives for or disadvantage learning by doing are antithetical to competition – they are likely to reduce competition rather than promote it. Again leading to "proposed remedies" that involve taking the property rights of large firms without compensation that have clear adverse effects on competition.

In short the CMA should make more use of, and err in favour of what I might call a properly conceived and analysed *intrinsic feature exception* to its current pro-regulatory bias.

Evidence and the Burden and standard of proof

The general law protects property rights, and this promotes consumer welfare, and the CMA should too. It has a duty to protect property rights, not rewrite them. This can be best achieved by adopting the presumption or null hypothesis that markets involving the exchange of well defined property rights are competitive, and putting the burden of proof on the CMA and other regulators like Ofcom to prove that the market is not competitive. This proof must then meet a reasonable standard, or else regulators are acting unreasonably and ultra vires or beyond their jurisdiction, if they pose a threat of, or engage in uncompensated takings of property rights. Indeed the regulators themselves are likely to have an adverse effect on competition (AEC), to the detriment of consumers if they don't follow this approach. In other words the presumption should be that people are allowed to go on with their ordinary business of life, and regulators should protect property rights for the benefit of consumers, unless it can be proven to a reasonable standard that a market is not competitive.

The burden of proof that a market is not competitive should be on regulators like the CMA and Ofcom, and regulators should meet a reasonableness standard to prove a market is not competitive, and that regulation can improve matters. A reasonable standard of proof should be high (higher than the balance of probability) given the high direct and indirect costs of regulation, that regulation forecloses market competition, and is largely irreversible, and involves a state prosecutor threatening uncompensated takings of property rights, and fines up to 10% of turnover - even criminal sanctions. Courts should also not lower the threshold or *defer* to regulators as a first instance trier of facts/evidence - or on legal issues (that are finding there way into guidelines and regulatory decisions) - but instead protect incumbent firm legitimate property rights, and as a result ultimately promote consumer welfare.

Contrary to this, Ofcom seemed to claim the standard of proof it faces for a MIR was a very low threshold - below reasonable it seems. While, as I showed in my earlier submissions, the CMA seems to require evidence that a market is competitive (when it should have to prove the *market* is not competitive). The CMA also uses poor measures on whether the market is competitive, using an absence of large firms (i.e. low market shares), low levels of product differentiation, high levels of switching and multi-clouding, and low levels of learning by doing – despite the enormous costs of such requirements in most real world markets. The CMA also tends to rely on poor data, relying on stated behaviours and stated intentions rather than

actual behaviour in its surveys and consultations that are subject to non-rondom sampling, even sample selection bias. In its guidelines the CMA further even claims the standard of proof it should face is quite low, at the balance of probabilities.[44] This seems unreasonably low, given the high costs, the foreclosure effect and irreversibility of regulation and the threat of major sanctions/remedies it now threatens to use – namely uncompensated takings of property rights, fines up to 10% of turnover and even criminal sanctions.

Regulatory Failure Risks and Costs

What are the relevant risks and costs of regulatory failure by the CMA?

Even though markets may fail, it has to be recognised that regulation may contribute to that failure - or only make matters worse. While intervening in a workably competitive market is simply unjustifiable in the first place, as it will inevitably weaken property rights (including the right to contract) without compensation, and have AEC detrimental to consumers and distort the markets operations as a result.

There is Insufficient discussion of regulatory failure and regulatory risk and costs in the PDR, yet this needs to be assessed to justify for the market investigation in the first place. It appears the CMA assumes that so long as it can identify low market shares, switching costs or a restrictive contract term then of course the CMA can make matters better, and this justifies regulatory action.

It appears to assume that inquiry into such matters itself has no adverse effect on competition. Regulatory failure is however well documented, likely if not inevitable and common, it's theoretical foundations are well established and empirical methods exist to test its extent - but the CMA does not seem to embed or factor it into its analysis or do any work on it.

The costs of regulatory failure need to be factored into cost-benefit decisions on whether to establish an inquiry, launch a MIR and/or otherwise regulate. Public choice theory, regulatory economics and the theory of bureaucracy clearly explain the key problems including interest group capture, information costs, incentive problems, median voter problems, regulatory creep, regulatory bias etc.

Regulatory failure is thus often driven by protectionist motivations, or justifications that in fact are most likely to contribute or cause problems like ""entrenched market positions" and "potential harmful competition behaviour" through premature and costly inquiries, and then adoption of harmful regulatory interventions that foreclose competition and weaken competition by "balkanisation" of the global market through domestic regulation.

[44] CC£ paragraph 319 page 68

The current investigation and its recommendations have and will clearly stimulate domestic interest group coalition formation, facilitate regulatory capture, and therefore exacerbate, and accelerate the risk of regulatory failure. This justifies not investigating at such an early stage, and ending the inquiries into competition in the cloud services market before they cause more regulatory problems and harm to consumers than it has been proven it could ever actually avoid. A prima facie case that embeds and factors in the costs and risk of regulatory failure is required first.

The CMA and the Government's Economic Growth and Industry Strategy

On a final note th4 CMA's failure to identify the *time dimension* to the CMA's statutory objective of maximising consumer benefits, means it does not clearly explain whether and how the government's goal of economic growth and its industry strategy is relevant to the CMA's statutory objective and duty. The CMA cannot ignore *future* consumer benefits or welfare. It must weigh current consumer benefits against future consumer benefits and favour optimal economic growth in consumer benefits. Otherwise, it may choose policies that benefit *current* consumers, but come at a greater cost to *future* consumers by taking property rights and harming businesses (foreign or domestic) in a way that lowers current business investment or innovation.

The relationship between the CMA's statutory objective and the Government's economic growth and industry strategy is clear. The time dimension to the CMA's statutory objective requires it to choose policies and decisions that offer an optimal growth path in consumer welfare over time. The CMA can support a Government economic growth strategy therefore *only if that industrial strategy in fact optimises consumer welfare over time*, and does not trade off current welfare of consumers for example at the greater expense of future consumers.

The CMA's concern has to be with economic growth that optimally benefits consumers over time. It should therefore intervene to correct Government policies that have anticompetitive effects and reduce consumer benefits over time. The CMA's statutory objective however requires it to support a strategy consistent with an optimal growth in consumer welfare over time. It can thus only support the Government's growth strategy if the Governments strategy is consistent with this CMA objective of optimal growth in consumer welfare over time, and will have to challenge and correct for the effects of Government's growth strategy, if the Governments strategy clearly undermines the achievement of the CMA's statutory objective of optimal growth in consumer welfare over time.

This means the CMA should focus on Government fiscal and legal advantages provided to specific corporations under any so-called industry strategy, as this creates barriers to entry by new entrants and expansion by competitors, and confers significant market power on advantaged firms, The CMA's core role in any industry strategy then should be to seek to

identify such fiscal and legal advantages conferred on individual firms, and limit and deter abuse of market power that inevitably derives from such advantages

Conclusion

The underlying counterfactual or "null hypothesis" or working hypothesis should be that the markets are competitive or exhibit workable competition that benefits consumers requiring no further regulatory action. Unless therefore the CMA can present a reasonable theory and strong evidence to refute this null or working hypothesis that the market is competitive then the investigation should end, and certainly no regulation, or what the CMA calls "proposed remedies" should be considered.

If a reasonable case can be made to refute the hypothesis that the market is competitive, then further investigation can proceed and the counterfactual changes to whether and if so how can regulation improve matters compared to the current market? This latter stage involves an empirical based comparative institutional test. How can new regulation improve the operation of the market by specifically removing the AEC, without introducing even worse market features and/or outcomes in terms of adverse consumer benefits? In other words what are the costs and benefits of regulation compared to the current market? Keeping in mind that uncompensated takings of property rights have serious, substantial *adverse effects on competition*, market exchange, investment, and innovation that will ultimately adversely affect consumers. Where these adverse effects will ultimately be on consumers.

I have outlined a few of the current apparent biases that the CMA seems to have adopted, as to the features that refute the competitive market hypothesis/counterfactual, or that it expects its theoretical counterfactual or benchmark or well-functioning market not to posess (i.e. economies of scale and scope, product differentiation, transaction costs minimization, and learning by doing). Yet being antagonistic to these features, or demonising their results, (e.g. large-scale firms), is clearly inconsistent with consumer welfare maximization over time. The approach borders on treating competitive behaviours (i.e. investing in economies of scale and scope, product differentiation, minimizing transaction costs, and learning by doing) as inherently net anti-competitive – it thus risks making competition law and policy inherently or intrinsically anti-competitive. The above features are pro-competitive. Competition law has to protect competition – and therefore such features – not competitors, who fail to achieve an efficient level of production scale, product differentiation, product scope, transaction costs, and degree of learning by doing.

The CMA for example seems to err when it often seems to ignore *the benefits of economies of scale* and does not seem to sufficiently recognise it is often better for consumers if just one, or a few very large firms serve the whole market. The CMA seems biased against, or antithetical to large-scale firms, or to facilitating or to allowing unregulated economies associated with increasing scale. The CMA seems to believe or assume instead that markets with very large-

scale firms need to be heavily investigated and regulated. This tends to be a knee jerk reaction that ignores the fact that economies of scale and their benefits are key drivers of strong competition, and that large firms are an intrinsic, or essential beneficial outcome or feature of a competitive market. This also ignores the fact that the uncompensated takings of property rights and interference in contracts that is inevitably a consequence of regulation of economies of scale (or large firms) will deter investment and innovation and lead to smaller scale firms, with associated diseconomies of smaller scale, or forgone economies of scale, due to regulation discouraging scale, and even forcing decreasing scale.

Second the CMA largely ignores diverse consumer preferences and *the consumer benefits of product differentiation*, and third economies of scope from firm diversification. Thus the CMA sees product differentiation (in markets and by firms) as creating market power and leading to AEC rather than fundamentally benefiting consumers, and being efficient, and resulting from intense competition.

Fourth the CMA further either ignores *transaction costs* – or the direct and opportunity costs of consummating exchanges or transactions - or seems per se opposed to them. Thus the CMA sees what it calls switching costs as a problem necessarily causing market failure and requiring regulation - rather than accepting switching costs as an inherent constraint in any workable market - simply a transaction cost. Markets do not work well for consumers without switching costs. Also switching costs cannot be abolished by regulation. Transaction costs also explain vertical and horizontal integration that can reduce transaction costs, improve efficiency, benefit consumers and result from intense competition. The CMA however tends to only see the risk of market power in mergers involving both vertical and horizontal integration.

Finally, the CMA treats *learning by doing* as causing problems that aren't in fact problems (e.g. that learning by doing causes switching costs, entry and expansion deterrence) and again leading the CMA to "proposed remedies" that in essence involve proposed uncompensated takings of the property rights of large firms without compensation, for no reason other than they are learning by doing - or learning organisations. The costs to consumers and AEC of such regulation is further ignored.

2. The PCIS, CSPNC or Cloud Services Market

A. Market Definition

In Chapter one of the PDR the CMA notes that

> 1.14 In this market investigation we are considering the supply of public cloud infrastructure services in the UK.

This statement is taken directly from Ofcom's Terms of Reference (ToR) for the CMA Market Investigation Reference (MIR). The statement clearly implies the intended product market definition for the MIR was *the market for "the supply of public cloud infrastructure services."*

The key point at the outset then is that this clearly specifies a single market –*the market for the supply of public cloud infrastructure services – or the public cloud infrastructure services (PCIS) Market*

The CMA then proceeds to define the relevant product - or public cloud infrastructure services (PCIS) as follows.

> 1.13 Public cloud infrastructure services provide access to computing resources on demand, via a network. Customers buy access to the computing resources as a service and typically do not own the underlying hardware and software.
>
> 1.14 In this market investigation we are considering the supply of public cloud infrastructure services in the UK. This refers to services that are open to all customers, with computing resources shared between them (public cloud computing) and which provide access to processing, storage, networking and other raw computing resources …. as well as services that can be used to develop, test, run and manage applications in the cloud.[45]
>
> 1.15 These public cloud infrastructure services are referred to throughout this report as cloud services.
>
> 1.16 Cloud services are differentiated by the level of control the customer has over the management and maintenance of the computing resources.

[45] The CMA at this point refers in a footnote to "Ofcom, Cloud services market study, final report, Terms of Reference, 5 October 2023 (Terms of Reference)".

This is a perfectly fine market definition. It makes clear that the PCIS market involves three key features

1) "access to computing resources on demand, via a network" including both "hardware and software." that "provide access to processing, storage, networking and other raw computing resources" as well as " services that can be used to develop, test, run and manage applications in the cloud"
2) Rental or right to use agreements only, not ownership in that "Customers buy access to the computing resources as a service and typically do not own the underlying hardware and software" in other words "the services are differentiated by the level of control the customer has over the management and maintenance of the computing resources"
3) Shared use not exclusive use in that to quote "we are considering the supply of public cloud infrastructure services in the UK. This refers to services that are open to all customers, with computing resources shared between them"

The problem I have is mainly with the terminology used to describe and the methodology CMA uses to redefine and dismantle the market. On terminology I find the terms like "public", "cloud" and "infrastructure" very vague, unhelpful, and even misleading and obfuscating. I believe there is a need to be to be more direct, accurate, clearer and more precise and so I rename it *the rental market for shared access to computer storage, processing and networking capability* (CSPNC) including both hardware and software. The key service being supplied and demand on this market *computer storage, processing and networking capability.*

This may seem like a mouthful! But it can be simplified as there are really two elements.

- First there are the terms of access or use – namely rental and shared – (which clarifies the term "public" used by the CMA) and
- second there is the *product definition* which is computer storage, processing and networking capability/power (CSPNC), which clarifies the term "cloud infrastructure" and which, it goes without saying, includes both hardware and software.. From the supply side point of view the CSPNC involves the *creating, producing, distributing and maintaining computer storage, processing and networking capability (CSPNC).*

The *rental market for shared access to computer storage, processing and networking capability* (rental CSPNC market) in turn is really a part of the wider computing storage, processing and networking capability (CSPNC) market that includes owned or proprietary (not rental) and exclusive (not shared) products and services as well as rental. For reasons outlined in my earlier reports, and further below, the market for computing storage, processing and networking capability (CSPNC) -including so called "cloud"[46] or shared rental services - is global, and highly competitive.

[46] It is easy to understand however how the **cloud metaphor** originated, and why it resonates and took hold in the computing lexicon. Where a user decides to own or rent, and share or exclusively use a group of networked computer assets or resources that are not accessed locally, but instead accessed via the internet (a global network of computers), all the data (inputs, instructions, outputs, messages etc.) will

Thus, we are really talking about *the market for CSPNC* which can be accessed on an owned or rented basis, and in either case, (owned or rented) on an exclusive or shared basis. Based on the Offcom ToR, and the name of the investigation in the CMA initial Issues paper i.e. the "Public cloud infrastructure services market " - I would therefore propose the evidence is clear on the two key dimensions of market definition then that the market to be investigated is

a) On product definition: There is a single product market definition the "Public cloud infrastructure services market " that I call the market for the acquisition and supply of computer storage, processing, and networking capability (CSPNC) as it is clearer technically, and better enables the application of appropriate economic theory and evidence to test the market.
b) On Geographic Definition: A global market definition that includes at least 10 major firms (and growing) besides those in CMA focus on (listed below) that are actually *capable* of supplying computer, storage, networking and processing (CSNPP) services in all markets globally over time *including the UK*. This is again clear and more consistent with available theory and evidence.

The CMA however has to date basically dismantles this wider market definition and largely invented and proposed a number of smaller markets that are based in the EU/EEA area, using what it calls its judgement, which in this case is a technical, not a legal term. Compared to an approach to product definition discussed in more detail in my earlier submission on the CMA 2024 Competitive Landscape Working Paper, the CMA lacks a clear and reliable starting point and methodology. It seems to define products vaguely using high-level supply side engineering components in an engineering "technology stack", that are then grouped and described using vague metaphors (like the cloud, the platform or infrastructure).

The CMA provides no real evidence to refute the more natural hypothesis of a broader and clearer market definition outlined above. In the broader market however there are strong competitive checks on market behaviour and clearly no market power, and consequently no scope for its abuse across all the issues the CMA is exploring, and therefore the CMA should end any further market investigation. As outlined in more detail in my earlier report(s) and elaborated further below however the CMA's underlying approach to dismantling the wider

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be disassembled into packets and transferred across the Internet as packets by different routes (of least resistance) and ultimately be reassembled at the destination point(s). From inception, the Internet readily evoked an "ether" - and later a "cloud" - metaphor to capture the seemingly diffuse, dynamic and intangible yet dense nature of the observed new phenomenon of the internet. CSPNC accessed through the internet - online on a shared basis - as above can readily be imagined or thought of as metaphorically accessed via an amorphous "**cloud"** – and the "cloud computing metaphor" and "cloud stack metaphor" ultimately stuck. The **cloud metaphor** however is not a useful a term for basing or conducting competition law analysis. It is simply too obfuscating, elusive, unhelpful. Competition law analysis must instead use a more micro-analytic law and economic approach, uncompromisingly.

market definition and landing on a set of more narrow ones is highly flawed and should be abandoned.

The CMA assigns the overarching metaphor “cloud services” to public cloud infrastructure services outlined above. The CMA basically then uses its own judgment to dismantle or unbundle the wider market definition and create ill-defined and more narrow service and market definitions The CMA proceeds as follows:

- First the CMA combines a number of engineering terms for components (compute, network etc) into categories, groupings or subsets that the CMA assigns vague names to, like “infrastructure”, or “platform” and separates them from more natural and appropriately named categories like software
- The CMA then assumes or alleges these categories can provide services that ultimately remain vaguely defined that are different from software service - even though the infrastructure and platform must surely involve software.
- The CMA however simply uses metaphors from industry or the popular press to name and describe these ill-defined infrastructure and platform categories when they are being rented even more vaguely. For example, the CMA describes three ill-defined services using very dated metaphors that are common in industry and the popular press but remain very unclear - including “infrastructure as a service”, and “platform as a service” and “software as a service” the latter term for example dating back to an industry conference in the 2000’s. This does not help define a market
- The CMA then further introduces common but again co-opts dated acronyms for these services (IaaS, PaaS and SaaS) giving them an auror of authenticity
- It then further separates and differentiates the services using epithets, separating IaaS into “standard IaaS” and “accelerated IaaS” - the later it claims being useable only in AI according to its judgement which seems unsound at this point.

It finally assigns each of the renamed services into its own narrow markets. It is hard to test the market boundaries for these products as they quite simply don’t exist in the market. As market participants regularly confirm.

The accuracy of the above summary of where the CMA has landed is made clear early in chapter 3 of the PDR where it addresses market definition and summarises its approach - the CMA simply states

> 3.10 In approaching the definition of the product market, we start from the Terms of Reference, public cloud infrastructure services in the UK. As part of our analysis, we have then considered whether:
>
> (a) IaaS should be segmented into separate, narrower markets;
> (b) IaaS should be segmented into separate markets for standard infrastructure and accelerated compute infrastructure;
> (c) IaaS can be widened to include PaaS:
> (d) PaaS should be segmented into separate, narrower markets;
> (e) PaaS can be widened to include SaaS; and

(f) Alternative IT models are substitutable for IaaS and/or PaaS.

In other words the CMA's evidence gathering, including surveys and analysis based or predicated on the above flawed conceptualisations of vague services and of vague markets (IaaS, PaaS) based on them, is biasing the data collected, thwarting and bypassing a more serious attempt at market definition.

I have reviewed CMA's market definition in the PDR and my comments on the CMA's 2024 Competitive Landscape Working Paper (CLWP) and the fundamental problems underlying its analysis stand, and so rather than repeat myself, I refer the reader back to that. As outlined in my earlier report and summarised above the CMA simply starts with existing engineering components, and an engineering design plan, or "technology stack" or map including components that it then aggregates into elements that it alleges offer services that are ill defined (e.g. "infrastructure", "platform"). It then considers the degree of substitution between these "off the Tech stack" focal products to test and define markets. This is not an economic approach to product or market definition and it is fundamentally flawed and biases all its survey and other work.

In an economic approach one focuses on the key decisions about property rights that need to be made on the demand and the supply side, the interdependencies between these decisions, and how these are reconciled through exchange, and contracts in markets. In making these decisions customers on the demand side like those on the supply side will weigh the expected costs and benefits of alternatives and choose the best for them. Thus one has to consider the demand side or value function and the benefits of the services or products, as much as the supply side's components and costs of production. One also has to consider the transaction costs that affect how exchange is organised, both in markets and in firms, and how the boundaries between markets and firms are determined or drawn.

The result of the CMA's vague "technology stack" plus "metaphor" approach is that it defines a set of very narrow markets for IaaS, PaaS and SaaS, and in its most recent work in the PDR it further breaks down IaaS into standard and accelerated IaaS with the latter associated with AI. This categorisation or descriptive approach to market definition has no real foundation. As a result the CMA fails to identify and test key constraints that would prevent the exercise of market power in any of the assumed separate markets. This leads the CMA to overstate both the extent of market power of firms, and the potential for abuse of market power by those firms, by for example negotiating anti-competitive egress fees and discounts as discussed later.

The CMA further increases the narrowness of the IaaS, and PaaS market it investigates by limiting it to companies with cloud data centres in the UK or EEA , rather than all relevant market players in a global market. The CMA's very narrow resulting market definition then leads the CMA too readily to the unreliable conclusion that firms hold significant market power and ultimately are abusing that power.

In summary then:

a) On product definition: CMA now defines six very narrow separate product markets, each for a unique product, which the CMA respectively calls standard IaaS, accelerated IaaS, Paas, SaaS, Private Cloud, and Traditional IT.
b) On Geographic market definition: The CMA further limits its inquiry to firms with data centres located in UK and EEA, further creating even more narrow market definition(s)

The CMA then goes on to analyse these narrow product and geographic markets and ask people questions about them. It then concludes there is a narrow market for IaaS and proceeds to focus on that For reasons I outline below I believe the CMA has underestimated the degree of substitution between the six products it has identified (ie calls standard IaaS, accelerated IaaS, Paas, Saas, Private Cloud, and Traditional IT) in a global.

I thus propose and derive and try to explore a wider market than the CMA, one that subsumes all six of CMA's product markets. I propose a wider market for the acquisition and supply of computer storage, processing and networking capacity (CSPNC) globally. This global CSPNC market subsumes the various separate markets the CMA uses (i.e. standard IaaS, accelerated IaaS, Paas, SaaS, Private Cloud, and Traditional IT) and others - including hybrid IaaS, PaaS etc .

Already today, there are at least ten owners and providers of computer storage, processing and network capability (CSPNC) worldwide besides Amazon Web Services, Microsoft Azure, and Google Cloud Platform who are the focus of the CMA. These include Alicloud, Baidu, Bytedance, Huawei, IBM Cloud, Oracle Cloud and Tencent. Each with its own competitive advantage and business plan but the capacity required to compete with Amazon Web Services, Microsoft Azure, and Google Cloud Platform who are the focus of the CMA. There are also regional market players, like OVHcloud and Scaleway, and newer entrants, such as Nvidia and CoreWeave. Notably, CoreWeave was founded in 2017 to address the need for GPU computing, especially for generative AI technologies. Other global and European Independent Service Providers (ISP) or players could readily expand or emerge to compete on CSPNC in Europe. It's a very competitive market. We have thus seen ongoing innovation and market entry and expansion, continuously expanding competition including recent developments, involving announcements from the US after the recent presidential elections, and developments in China related to DeepSeek-V3 which claims to have achieved a significant breakthrough in inference speed over previous models that economises on demand in the CSPNC market.

B. Market Power

Having broadly defined the relevant markets - what is the theory and evidence to refute the null hypothesis that the market is competitive? What is the relevant theory and evidence as to the existence of market power in the relevant cloud services or CSPNC market(s)?

In what follows I comment on the CMA's claims about market power. To do this I organise my discussion around the five key determinants of market power or key drivers of competition and competitive conditions

- In market rivalry
- Substitution possibilities for consumer's and/or suppliers
- Barriers to entry, including a definition of barriers to entry
- Counter-veiling Consumer power
- Counter-veiling Supplier Power

On all counts I show that the cloud services or CSPNC market is competitive.

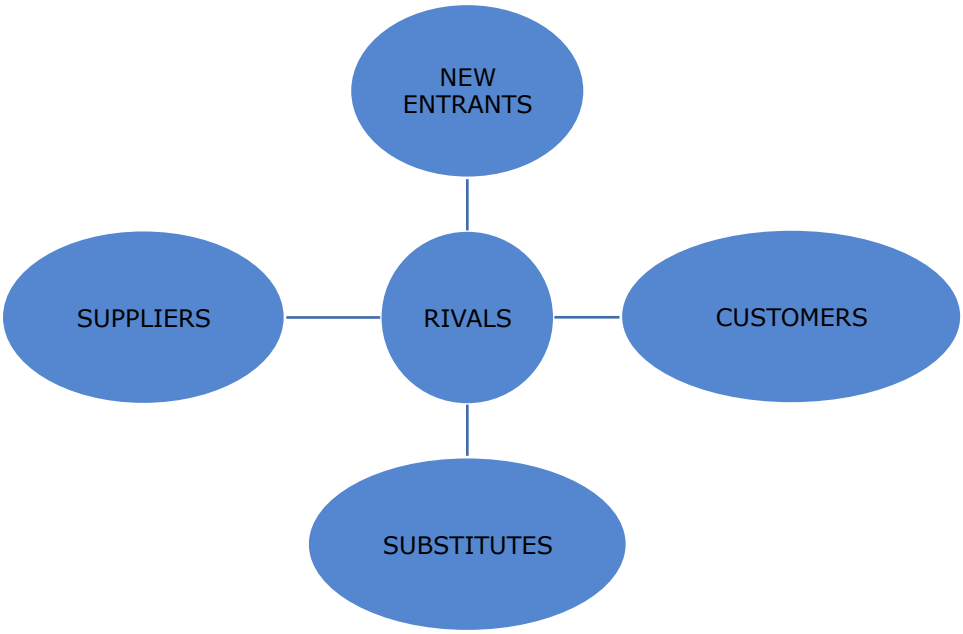
As we shall see the key drivers of competition relevant to competition law regulation are not to be found in an analysis of the characteristics of the competitors in particular successful players like their size. Thus it is problematic that the CMA focuses so narrowly on specific large firms like AWS and Microsoft. The relevant drivers of competition are instead characteristics of the market – in particular competitive conditions in the market. It is **features of the market** - market competitive conditions - not the features of a particular company that drives competition. The CMA should thus be concerned with the characteristics of competitive conditions in a market – not the characteristics of individual successful firms e.g. that they are large incumbent tech firms.

In a competitive market typically the characteristics of a successful player for example that they are large, can be replicated over time and their determinants are well known. Successful players in a competitive market are those that are most efficient in meeting the demand of their customers compared to their competitors. In a competitive market then the most efficient firms will succeed as a result of the competitive process. The drivers of competition of concern to regulators however thus do not lie in characteristics of a successful player or incumbent company that can be replicated in response to competitive conditions.

As noted there are five competitive conditions or factors that drive the state of competition in any market and therefore the competition risks that need to be proven as substantial listed above, these can be summarised using the diagram below as follows.

- First "in market" rivalry as shown in the middle circle of the diagram;
- Second substitution possibilities for consumers, and suppliers shown on the bottom;

- Third barriers to entry facing new entrants, shown at the top;
- Fourth customer, or buyer countervailing market power shown to the right; and
- Fifth supplier countervailing market power shown on the left.



I discuss each in turn.

In Market Rivalry & Market Shares

There is clearly intense within market rivalry. Substantial computer storage, processing, and networking capacity at scale is readily and cheaply available and deployable at declining cost and increasing quality over time from around the world. On current market players already today, there are at least ten owners and providers of computer storage, processing, and networking capacity (CSPNC) capacity worldwide besides Amazon Web Services, Microsoft Azure, and Google Cloud Platform who are the focus of the CMA. These include Alicloud, Baidu, Bytedance, Huawei, IBM Cloud, Oracle Cloud and Tencent. There are also regional market players, like OVHcloud and Scaleway, and newer entrants, such as Nvidia and CoreWeave. Notably, CoreWeave was founded in 2017 to address the need for GPU computing, especially for generative AI technologies. Other global and European Independent Service Providers (ISP) or players could readily expand, or emerge to compete on CSPNC in Europe.

"In market" rivalry shown in the middle of the above diagram is then traditionally measured by market shares analysis. Thus after reviewing the CMA's discussion of switching I will then turn to review and discuss the CMA approach and analysis of market shares briefly. But market shares can only be used as a first step for screening if markets may require further assessment.

The reason is that one firm may be dominant simply because it is the most efficient,[47] but that firm is nevertheless constrained by the other four competitive conditions identified in the diagram above.[48] So in a sense this section is only a preliminary step towards assessing whether the market is competitive.

Given our discussion on market definition above, until relevant markets are better defined, it is in fact impossible to calculate markets shares. Nevertheless we shall discuss the CMA's approach and analysis of market shares briefly. The key point though is that market shares do not in any event constitute reasonable ground to conclude the market is not competitive, and continue with the market investigation, One has to look at the other competitive conditions especially barriers to entry that determine market power and the scope for its abuse and refute the null hypothesis that the market is competitive.

The CMA View

The CMA discusses market shares at length in section 3 on the Competitive landscape

> 3.131 In this section we consider the structure of the markets based on our shares of supply analysis. We have calculated shares of supply using various metrics to give an overall picture of the market structures and an indication of how those structures are likely to evolve over time.
>
> 3.133 We have calculated shares of supply based on three different metrics: (i) shares by revenue; (ii) shares by capacity; and (iii) shares based on the flow of new business.

The CMA then goes on to elaborate its considerable research over 19 pages.

CMA claims that

> 3.138 High and stable or increasing shares of supply can be a **strong** indicator of market power, although they should be considered alongside other indicators, such as high barriers to entry and expansion, high profitability and high barriers to switching.

It is not true at all that stable or increasing shares of supply is intrinsically a strong indicator of market power that is relevant to regulatory decision making. The reason is not simply to do with the fact that other factors determine market power - including primarily barriers to entry

[47] This may be due to economies of scale in production or consumption. These may lead to one firm dominating a market or typically three or four firms if there is product differentiation and market segmentation. There is heterogeneity in the products and services firms may offer, and in consumers demand. To the extent there is a corresponding heterogeneity in consumers demand then there can be "matching" and multiple firms can succeed and match with different consumers.

[48] Standard market share analysis may need to be adapted slightly for two sided or multi sided platforms Lougher and Kalmanowicz (2016), *supra* note 4, at 97

listed by CMA above. This outcome high market shares may also reflect an efficient market with high economies of scale and scope in production and consumption, and in which it is best for consumers if there are high market shares, to prevent wasteful duplication of fixed costs, wasted investment and lost economies of scale and scope, and foregone lower prices, less supply, and lower quality products as a consequence.

High market shares then should be treated as a **strong** indicator of an efficient market that signals a number of intrinsic features and beneficial aspects of competition that should not be compromised by CMA regulatory intervention through uncompensated takings of property rights.

For the purposes of this share of revenues analysis, CMA defined UK Revenues as revenues generated from UK Customers in the UK, and defined UK Customers as Public Cloud Infrastructure Service customers that are operating or trading in the UK. In other words it adopted its own very narrow and market definition. The CMA also defined Annual Revenues as revenues generated within a calendar year from AWS, Microsoft, Google, Oracle, and IBM.

On shares of capacity the CMA claims that

> 3.170 Shares by capacity … show us the relative strength of each provider in terms of their production capability. … Absent barriers to competition or switching, firms with greater capacity have a greater ability and incentive to compete for business and thereby exert a competitive constraint on rivals.

Once again this is an interesting notion, but this statistic can't be used to refute the legal presumption or null hypothesis that the market is competitive. Excess capacity may just provide a valuable option for expansion in the future with expected market growth from AI and be of benefit to all consumers in the repent and the future. Excess capacity may just alternatively reflect bad management or poor service quality that is not of interest to consumers. Or excess capacity may simply be a waste of resources that is not in the long run interest of consumers and may adversely effect competition, not positively affect competition as the CMA claims.

CMA describes how it estimated capacity

> 3.173 We calculated the shares of supply by capacity using data from AWS, Microsoft, Google, IBM, and Oracle and some smaller IaaS providers that serve UK customers, on their datacentre capacity in megawatts (MW) within UK+EEA, globally, and in the UK.

On shares of flows of new business, The CMA comments that

> 3.182 …to... reflect recent changes in the relative competitive position of suppliers… it is useful to consider evidence on shares of supply on a 'flow' basis (eg shares of new customers or new revenues).

The CMA then discusses four measures of the flow of new business as follows

> 3.183 In this section we present the following shares based on the flow of new business:
> a) Shares by overall revenue growth
> b) Shares by new customers acquired
> c) Shares by revenue from newly acquired customers

We review its approach and results below.

Comment

To better reflect the wider CSPNC market definition that seems more reasonable I focus on the revenue data share analysis using the widest market definition analysed by CMA, (that at least incorporates IaaS and PaaS). In general CMA's evidence is consistent with the hypothesis that the CSPNC market is competitive. CMA comments

> 3.156 Our analysis shows the shares of supply in cloud services by revenue – that is IaaS and PaaS in combination. Our analysis shows that:
>
> (a) AWS is the largest provider of IaaS and PaaS and it share has remained broadly stable: its share was [30-40]% in 2019 and [30-40]% in 2022;
>
> (b) Microsoft is the second largest provider of IaaS and PaaS and its share has **increased** from [20-30]% in 2019 to [30-40]% in 2022 as it gains ground on AWS;
>
> (c) Google is the third largest provider of IaaS and PaaS …. has ['] **increased** its share from [5-10]% in 2020 to [(5-10]% in 2022;
>
> (d) For IBM and Oracle, shares have remained in the [0-5]% range from 2019 to 2022.[49]

Turning to shares of capacity as the CMA itself notes

> 3.173 …these shares therefore do not include the capacity of other smaller IaaS providers and as such each provider's share is likely a small overestimate across all providers and should be interpreted as an indicator of relative share between the cloud providers included in the calculation.

[49] Ibid page 106

Implying that its estimates are unreliable. The CMA does not actually share the results of its analysis in its paper nor does it make clear how the results can be used to refute the reasonable hypothesis that the CSPNC market is competitive

On shares of new business CMA notes that

> 3.184 … the granularity of the data we have gathered means we cannot distinguish between the following
>
> (a) If the new customers a provider acquires are: (i) customers completely new to the cloud (representing competition for customers); (ii) customers that are only new to that provider and placing a new workload (representing competition for new workloads); or (iii) customers that are only new to that provider and switching an existing workload (representing competition for existing workloads).
>
> (b) If changes in a provider's revenue from existing customers is caused by: (i) some existing customers decreasing/increasing their spend on existing workloads without switching (eg cost optimisation, business expansion); (ii) some existing customers switching existing workloads to or from another cloud provider (representing competition for existing workloads); or (iii) some existing customers placing new workloads with that provider.

By the CMA's own admission the data is not that helpful. More fundamentally however, it is not that clear how this data can be used to refute the hypothesis that the market is competitive. It is simply not clear what evidence on shares of business acquisition, or change in shares of business acquisition could refute the hypothesis that the market is competitive. Constant and changing shares are consistent with competition depending on competitive conditions discussed further below.

There is a lot of evidence presented however consistent with the market being competitive that CMA mentions including

> 3.193 Shares of supply by year-on-year revenue growth in IaaS and PaaS combined show that… :
>
> (a) Microsoft's share of revenue growth **fell** slightly from [30-40]% in 2021 to [20- 30]% in 2023;
> (b) AWS' share of overall revenue growth **fell** slightly over 2021 to 2023: it won [30-40]% and [30-40]% of overall new revenues in 2021 and 2023, respectively;
> (c) Google's share of overall growth **grew** over 2021 to 2023 from [10-20]% to [10-20]%;

(d) For IBM and Oracle, shares of growth have remained in the 0-5% range; and
(e) Share of revenue growth from all other providers **increased** from [10-20]% in 2021 to [20-30]% in 2023. This is across an estimate of other providers based on more than 300 other providers

The CMA however doesn't really seem to acknowledge the above evidence is consistent with the market being competitive. As noted constant and changing shares are consistent with competition depending on competitive conditions discussed further below.

Substitution possibilities for consumer's and/or suppliers

The second major competitive condition to be examined is substitution possibilities for consumers, and suppliers. This is shown on the bottom of the earlier diagram in the middle.

As noted earlier in order to test market power or refute the assumption that a market is competitive one first has to define the market. This is tested by the extent of substitution and switching in the market in response to price changes. The full extent of the substitution possibilities should thus have been made clear by the application of the HMT or SNIP test to relevant markets adopted by OfCom or the CMA. Neither Ofcom, who made the original reference, nor the CMA have conducted the requisite HMT or SNIP test for their chosen or relevant markets for two reasons. First, they defined the products and therefore markets very poorly, preventing a proper inquiry. Second, they have not and do not seem likely to acquire relevant data of actual behaviour to conduct such a test properly.

Ofcom and the CMA thus does not adequately test the extent of the market using the SNIP or HMT test. They have not proven a lack of substitution or competition to justify their narrow market definitions. A wider product and global geographic market offers extensive substitution possibilities for consumers and suppliers

Switching and Multi-Cloud

The CMA claims that profitability can be a strong indicator of market power

> 3.138 High and stable or increasing shares of supply can be a **strong** indicator of market power, …. alongside other indicators, such as high barriers to entry and expansion, **high profitability** and high barriers to switching.

CMA's View

3.377 We have found that full switching is extremely rare in the market. While cloud providers said that low switching rates reflect that customers are satisfied with their providers, we consider such a low level of switching together with high levels of profitability among the largest providers to be consistent with the presence of high barriers to switching. This is reflected by customers' views. This indicates that switching costs outweigh the benefits of changing provider for many customers

3.378 The barriers to multi-cloud are not so high that it is prevented to the same degree as switching and we have found that multi-cloud is used by many larger customers. But its overall prevalence indicates that some barriers exist and that, in particular, customers' ability to integrate workloads on more than one cloud is subject to barriers. The barriers may also be greater for smaller customers.

Comment

I have reviewed the CMA's report(s) and find the data on switching and multi clouding the CMA has relied on, and the way the CMA have analysed that data mean it is very unlikely that any reasonable conclusions can be drawn from it. Moreover, unless such data is made available for review it is hard to even verify the accuracy of the analysis CMA has conducted.

There are three further reasons however why CMA's analysis of switching and multi-cloud data, cannot provide reasonable grounds for a conclusion that the market for the supply of public cloud infrastructure services in the UK is not competitive.

1) Switching and multi-cloud behaviour both relate to only one of the five relevant competitive conditions for market power to exist that I have listed above – namely the "substitution possibilities for consumer's and producers" condition, which I am considering now. The problem then is that
    a. limited observed switching behaviour and/or acquisition of the same goods and services from multiple suppliers and/or
    b. Limited ability to switch and/or limited ability to acquire the same goods and services from multiple suppliers

   alone do not provide strong enough evidence of limited substitution possibilities, and more significantly of the existence of significant market power. One has to consider the other four conditions I identify above, and the possible legitimate or efficiency reasons for limited switching or multi-clouding in the first place that U discuss next.
2) Evidence relied on by CMA that switching and multi-clouding is not strong evidence to refute the null hypothesis that the market is competitive. The CMA does not have any evidence on the basis of switching and multi-clouding data that there are barriers to switching and multi-clouding that have an AEC to the detriment of consumers. As switching and multi-clouding are not necessarily related to the competitiveness of the market in the manner posited by the CMA for a number of reasons.
    a. Transactions costs deter switching in competitive markets. Transaction costs

involve the costs of identifying contracting parties, negotiating, monitoring and enforcing contracts and other irreducible direct, indirect and opportunity costs or exit and transfer costs that are real and unavoidableTransaction costs like production costs therefore do not have an anti-competitive effects that can or should be addressed by CMA remedies Transaction costs are driven significantly by

i. valuable relationship specific assets that may be foregone by switching, and
ii. bounded rationality of consumers and suppliers,
iii. information costs of consumers and suppliers and
iv. Opportunism including the known of sellers who oversell their ability to deliver

that all confront users assessing unknown new providers. All competitors face transaction costs. It is hard to see how transactions costs could therefore be said to harm an efficient provider - or consumers - they are just a commercial reality. It can be efficient for a consumer to stay with an existing provider to minimise the real direct and opportunity costs of switching. Not switching can be a good thing for consumers. Transactions costs are thus not properly understood as a policy or legally relevant barrier to efficient competition. To have more switching would be inefficient and harm consumers. Regulation to force, subsidise, enable and/or encourage more switching will only make things worse. Moreover, even though consumers say they would like to switch the problem is they may be speaking hypothetically or implicitly on the condition that it was beneficial - and not in fact costly - wishing away real-world constraints with unreasonable expectations. One has to observe actual behaviour and control for its drivers not stated preferences.

b. In a competitive market, firms tend to deliver for their customers, and after an initial sorting and matching process, customers stay with the same provider, employer or local restaurant.
c. In addition, features like economies of scale (consumption and production) can lead to high market shares as outlined in the last section, and thereby limit the number of firms, and the scope for switching, but yet all this results from and is consistent with a competitive and efficient market, as we shall see.
d. Thus switching is not that common at any point in time even in competitive markets. Thus for example, in a normal labour market in any year relatively few employees actually switch firms. On average, the percentage of employees that changed firms each year ranges from between only around 4% in 2010 to around 8% in 2018 in the UK.[50]

- [50] This estimate uses data on those individuals who were in the Annual Survey of hours and Earnings (ASHE) sample in two consecutive years and drop the rest to create a continuously employed ASHE dataset. Movement of workers "between" firms is defined as those workers who are either in a different area of work compared with the year before, or they have changed the industry they work in, or are in a different occupational category. On average, around 9% of people changed jobs each year between

The data the CMA has found is further meaningless in the absence of a reasonable and well specified counterfactual. The relevant counterfactual is that the market is well-functioning - that it is competitive. The CMA needs **strong** evidence therefore that the market for cloud services is not competitive. Even a total absence of switching and multi- clouding would prove nothing in this regard – like market shares it is weak evidence. A legal monopoly is strong evidence of barriers to switching and multi-clouding. So too would be DIRECT evidence of unreasonable restraints of trade. So far we have nothing.

The CMA however seems to be proceeding as if, following Ofcom's reference, the hypothesis to be refuted is that the market is not competitive, and it has to then look for evidence that the market is competitive. It then assumes wrongly that evidence that switching and multi-clouding is uncommon enables the CMA to *maintain* the hypothesis that the market is not competitive and continue with its investigation. That evidence that *is consistent* with the market being anticompetitive means the market is anticompetitive This is not true in law, and it is not scientific. The CMA has to refute the hypothesis that the market is well-functioning and competitive to a high standard of proof. The CMA carries the burden of proof and faces a high standard of proof. It cannot rely on evidence that is merely consistent with both a competitive market and a non-competitive market. And a lot of such evidence (on market shares and switching and multi-cloud) does not prove anything –more and more poor evidence does not make strong evidence – just a lot of evidence.

In my view even if one assumed there is a very low threshold of proof to refute the hypothesis that the market is competitive, the threshold nevertheless has to be reasonable - and such a reasonable threshold has not been met yet - as the data presented so far on on market shares and switching and multi-cloud is so poor and its value not probative. It was and still is still open to the CMA to maintain the conclusion that there are no reasonable grounds for the investigation, and to abandon further inquiry, but it clearly has not in the time since the Ofcom reference was made.

To put it quite simply, the CMA however seems to be starting or working with the opposite presumption to what is required by law. It is hard to avoid the conclusion the CMA appears to assume that strong evidence that switching is common is necessary to refute the hypothesis that the market is not competitive, and that otherwise the CMA can continue to assume the market is not competitive and continue with the investigation and to remedies. As a result of it's apparent an approach, if the CMA finds evidence that it believes shows switching is

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2000 and 2018; this ranged from a post-recession low of around 5.7% in 2010 to a high of around 10.9% in both 2017 and 2018.In 2018, 75.4% of job changers moved between firms, while 24.6% moved within firms.
https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2019/analysisofjobchangersandstayers#job-changers-and-stayers

uncommon, then the CMA seems likely to maintain an assumption that the market is not competitive, and therefore continue with its' investigation, and continue to require strong evidence to refute the hypothesis the market is not competitive,

Whereas, the CMA should be looking for reasonable, and strong evidence to refute the hypothesis that the market is competitive. Why does one need to look for such strong evidence of switching being common? Strong evidence that switching is common does not refute the hypothesis that the market is competitive. **More importantly one does not need strong evidence of switching, one primarily needs strong evidence of barriers to entry creating market power to refute the hypothesis that the market is competitive., even with low switching**

The reasons why I think CMA does not have reasonable grounds to believe there are barriers to switching and multi-cloud are the same reasons why I believe the CMA was obliged at this point to now end its investigation without further reports. As noted, switching and the competitiveness of the market are not necessarily related in the manner posited by CMA. In a competitive market firms deliver for their customers, and after an initial sorting and matching process, customers stay with the same provider, employer or local restaurant. In addition, intrinsic features like economies of scale (consumption and production) can lead to high market shares as earlier, and thereby limit the number of firms, and the scope for switching, yet this result is consistent with a competitive and efficient market. Switching is never that common at any point in time in competitive markets. For example, in a normal labour market in any year on average, the percentage of employees that changed firms each year ranged from between only around 4% in 2010 to around 8% in 2018 in the UK.[51] This implies relatively few employees actually switch firms in any year. Quite simply the same is most likely true of CSPNC customers - few switch, because the market is competitive, not because it isn't, and the data is consistent with that

Given the CMA's purpose and role, the fact it looks for strong evidence of switching being common, and therefore one presumes to refute a hypothesis that the market is not competitive seems ultra vires and for good reasons. In particular it seems to be a waste of resources including taxpayer's money to look for strong evidence a market is competitive when the obligation is to look for strong evidence that the market is NOT competitive. Implying a

- [51] This estimate uses data on those individuals who were in the Annual Survey of hours and Earnings (ASHE) sample in two consecutive years and drop the rest to create a continuously employed ASHE dataset. Movement of workers "between" firms is defined as those workers who are either in a different area of work compared with the year before, or they have changed the industry they work in, or are in a different occupational category. On average, around 9% of people changed jobs each year between 2000 and 2018; this ranged from a post-recession low of around 5.7% in 2010 to a high of around 10.9% in both 2017 and 2018.In 2018, 75.4% of job changers moved between firms, while 24.6% moved within firms.
https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2019/analysisofjobchangersandstayers#job-changers-and-stayers

requirement that switching should be common, and conducting an investigation into such a requirement is likely to signal the need for and trigger wasteful rent seeking. It encourages wasteful rent seeking by those seeking to benefit from CMA regulation or extend their rights through regulation and requires unnecessary expenditures by incumbent firms in providing unnecessary evidence to defend their rights. The above claim further risks signalling an implicit threat of regulation that can chill and distort investment and innovation.

Conclusion

I believe that the burden of refuting the hypothesis that the market is competitive to a reasonable threshold has not been met here. It was, and still is open to the CMA to reach the same conclusion, or conclude that there are not reasonable grounds for further investigation, but it clearly has not done that in the time since the Ofcom reference was made.

The CMA has not been able to provide reliable evidence on switching to justify further investigation -
The CMA has now provisionally decided that market is not competitive, and now proposing DMCCA remedies. Evidence on market shares and switching and multi cloud behavior alone however do not justify inquiries and interventions in a market, and in any event evidence on market shares, switching and multi clouding do not justify an hypothesis or assumption that there is market power let alone its abuse. The evidence is either non-existent, unreliable or inconsistent with claims that there is market power. At this stage of the analysis it would thus seem that contrary to its current provisional decision

- the CMA is obliged to now end its investigation without further reports, and
- the papers released to date are flawed

In my view the CMA ongoing publication of reports on this topics only perpetuates and serves to compound the unreasonableness of the investigation for the reasons I have already discussed.

So what other evidence is there? and does it prove the market is not competitive?

Next we turn to barriers to entry

Barriers to Entry

The critical competitive condition relevant to total consumer and wider welfare and for regulators to focus on in any market is the ability of new entrants (shown at the top of the earlier diagram) to enter the market to compete with incumbents that engage in anti-competitive behaviour with adverse effects. This depends on *barriers to entry* facing new entrants, which may create market power for an incumbent platform.

CMA's View

The CMA has created a dedicated new chapter in the PDR devoted to barriers to entry and expansion. It is commendable that it has done to ensure this critical factor is given the greater consideration that it deserves.

The CMA describes chapter four as follows

> 4.2 This chapter sets out our assessment of barriers to entry and expansion in the cloud services markets. To do this, we assess whether:
>
> (a). large sunk cost investments by the largest providers deter entry into the IaaS market;
>
> (b) larger cloud providers benefit from economies of scale when compared to smaller competitors; and
>
> (c) having a large portfolio of cloud services gives cloud providers strategic advantages over their competitors.
>
> 4.3 We also assess potential barriers to entry and expansion arising from 'cloud credits' offered by larger cloud providers, reputational barriers that could favour the largest providers, and regulatory barriers that may inhibit the growth of cloud service providers.

Chapter four thus sets out the CMA's assessment of three suggested barriers to entry and expansion in the cloud services markets in separate sections

a) Sunk Investment Costs of the largest providers in the IaaS market;
b) Economies of scale of larger cloud providers;
c) Size of cloud providers' product portfolio

The first two categories are clearly related and have foundations in economic theory. The third category is slightly problematic and a mixed bag the way the CMA presents it. There presents no clear unifying underlying theory supporting the third category. The CMA in fact breaks the third category into three subcategories

- Importance of range of services
- Economies of scope
- Network effects

First then a minor point on presentation. The last two points (economies of scope and network effects) relate to economic phenomena that have well elaborated underlying economic theoretical foundations. The last two economic phenomena in fact explain why firms may offer a "range of services" - or explain the first point. They do this by focusing on the supply side (economies of scope) and the demand side (direct network effects)– and on the interaction between the two sides of the market (indirect network effects) separately. What thus seems to bring this "product portfolio" section together are underling economies - in production and demand, and in their interaction. The reference to a portfolio (or range) of services per se,

tends however to confuse matters as it can be used to refer to other economic phenomena, including so called modern portfolio theory, or mean-variance analysis, which is a mathematical framework for assembling a portfolio of assets such that the expected return is maximized for a given level of risk. The CMA is not referring to the latter I don't think, so it might have been better just to have discussed three topics entitled 1. economies of scope, 2. direct network effects and 3. indirect network effects in three different sections. I will however follow CMA's lead on structure in my discussion of the CMA's view below.

The CMA also assesses potential barriers to entry and expansion arising from

d) 'cloud credits' offered by larger cloud providers,
e) reputational barriers that could favour the largest providers, and
f) regulatory barriers that may inhibit the growth of cloud service providers.

In elaborating the CMA's view in this chapter as to the role of the above factors as barriers to entry and expansion, the CMA largely just references its own guidelines[52] in support of its conclusions. The CMA's guidelines of course are not law, nor do they present uncontested economic theory, they are just another statement of the CMA's view on relevant matters to market investigations. I therefore treat the CMA's PDR statement of the theory of the CMA's case on its stand-alone merits.

Sunk investment costs

The CMA claims that the size of AWS' and Microsoft's investments and holdings of assets represent substantial barriers to entry in the form of sunk cost investment risk

> 4.27 Entry and expansion in the supply of IaaS requires significant capital investment in fixed assets. These investments are mainly sunk costs that would not be recovered in full on exit.
>
> 4.30 Large scale market entry will entail a risk that significant sunk investment costs may not be recovered, because it will generally be successful only if the entrant can expand the total market significantly, or win substantial business from an existing firm.791
>
> 4.31 On this basis, the size of AWS' and Microsoft's investments and holdings of assets represent substantial barriers to entry for any provider that does not have the capital available to make investments of a similar magnitude.

The CMA accepts that the behaviour of the large incumbents can be disciplined to the by smaller player entry and expansion to the extent

[52] Especially its April 2013 Guidelines for Market Investigations

4.32 The size of up-front investment can be reduced by co-locating or leasing data centres, allowing new entrants to scale their business as they grow their customer base.

The CMA concludes however that

4.32 …entry on a small scale means that any new entrant would not be able to compete on an equal footing with the largest providers as they would not have the geographical reach, resilience, network or ability to shift demand compared to the largest providers. Also, data centres only make up part of the value of large cloud providers' fixed assets and a new entrant would still need to invest in the servers, components and network equipment for a co-located or leased data centre. Therefore, substantial levels of investment are still required.

The CMA further claims that AI appears to have only increased the scale if investment required

4.33 The largest cloud providers are making significant further investment in their cloud infrastructure to meet growing demand for AI services. This increases the capital investment required by a new entrant, should they choose to offer customers accelerated compute capacity.

4.34 While there is some evidence of entry and expansion into niche areas within the IaaS market, we do not consider this to provide a comprehensive challenge across the full range of services offered by the largest cloud providers, and so any resulting competitive pressures would be limited.

On sunk investment cost risk the CMA's conclusion is as follows

While we recognise that investments by cloud providers may have pro-competitive effects and benefit customers, this does not preclude them also having the effect of deterring market entry and expansion (P175)

Economies of scale

In this section of the chapter the CMA describes the nature of economies of scale, its sources as and, the CMA's assessment of whether large cloud providers benefit from economies of scale. It concludes that economies of scale, in combination with sunk investment costs, can constitute a barrier to entry or expansion

In elaborating this view the CMA largely just references its own guidelines in support of its claims. CMA guidelines of course are not law, nor do they present uncontested economic theory, they are just a more general statement of the CMA's underlying view.

The CMA describes economies of scale and how they arise as follows

> 4.35 Economies of scale arise where average costs fall as the level of output rises over a range of output volume. As noted above, economies of scale, in combination with sunk investment costs, can constitute a barrier to entry or expansion.
>
> 4.36. The evidence that we have gathered shows that economies of scale are achieved through:
> (a) purchasing efficiencies, including bulk purchasing servers, components and network equipment;
> (b) operating efficiencies, including in relation to energy requirements, data centre capacity and utilisation; and
> (c) investment in research and development.
>
> 4.37 Economies of scale and, in particular, purchasing and operating efficiencies most clearly arise in relation to IaaS. However, they may also apply to PaaS in some circumstances, for example in relation to research and development.

The CMA concludes that when viewed in conjunction with the significant sunk cost investments required that economies of scale act as material barriers to entry and expansion.as follows

> 4.67 There appear to be material economies of scale in the provision of cloud services, in particular for IaaS. These include that larger cloud providers generally:
> (a) achieve purchasing efficiencies from bulk discounts on necessary equipment;
> (b) achieve lower operating costs through a combination of a greater number and larger average size of their data centres, which generally results in lower average energy requirements and higher utilisation rates; and
> (c) are making material investments in R&D which they can then spread over a wider business.
>
> 4.68 The significance of the individual factors varies, but in aggregate and when viewed in conjunction with the significant sunk cost investments required to enter and expand in the IaaS market we con consider that economies of scale act as material barriers to entry and expansion.

Size of cloud providers' product portfolio

In this section of the chapter the CMA describes the features of cloud providers' product portfolios, and assesses whether having a large portfolio of cloud services may give a cloud provider advantages over its rivals, and the sources and nature of these advantages.

On the features of the cloud portfolios the CMA notes

> 4.70 Cloud providers typically offer a range of first party cloud services through their platforms and some also offer third party services provided by ISVs through a marketplace accessible by customers on the provider's platform. Marketplaces are used by eligible ISVs to offer their own services to the customers of those providers.

On its approach to its assessment the CMA notes

> 4.71 In assessing cloud providers' product portfolios, we look at both first and third party services, as well as both IaaS and PaaS.

In terms of the sources of the advantages the CMA considers three elements

> 4.72 We break down product portfolios by discussing:
> (a) the importance of range of services;
> (b) economies of scope; and
> (c) network effects

The Importance of the Range of Services

Despite the title of this section the CMA does not really provide a clear explanation of the exact mechanism by which, or reason why range of services is important. The CMA dioes not really elaborate an underlying economic theory There is no clear theoretical point to rely on here, unlike with economies of scale, scope and network effects

In making its assessment on range of service the CMA relies primarily on customer views on the importance of range of first and third party products. This evidence is unavailable to review in detail and needs to be interpreted and relied on with caution.

The CMA concludes however that

> 4.82 We consider that the range of first party products is an important factor for customers when choosing which cloud provider(s) to use.

As we shall this customer preferences for a range of services does not provide evidence of a barrier to entry or expansion, nor as noted does the CMA provide any special or underlying theory of why consumers treat the range of first party products as important, nor why CMA

considers such consumer preferences as important. Firms can compete to offer a range of services, as with anything valued by a consumer. The market is contestable. The best performing firms will survive.

Economies of Scope

The CMA defines economics of scope as follows, citing its 2013 Guidelines on Market Investigation as authority

> 4.83 Economies of scope arise when producing two (or more) services is less costly for a single firm than for two (or more) firms each to produce the services separately.

The CMA claims that

> 4.83 …..Where economies of scope are significant, an entrant, if it is to be successful, might have to produce a range of services from the outset, adding to the costs of entry. Economies of scope might be relevant if, for example, R&D and operations spend can be spread over a wider range of services.

The CMA notes it approached cloud providers to try and find evidence of economies of scope as follows:

> 4.84 We asked cloud providers to explain whether they could benefit and have in the past benefitted from any efficiencies as a result of increasing their range of services.

At this point the CMA uses the term "range of services" which is the same as the heading of the last section, but one presumes its inquiry of providers in this section was focused on production side cost efficiencies - whereas in the last section the focus was on demand side or consumer benefits. But one cannot be sure. Once again, these surveys do not provide reliable evidence. It is not clear for example that the CMA selected participants were responding on net benefits overall, or just focusing on local raw benefits. The response was also mixed with AWS saying that an increase in the number of services offered does not necessarily increase overall efficiency for a cloud provider.

The CMA's conclusion was thus more restrained on economies of scope noting

> 4.88 There may be some economies of scope in supplying a range of cloud services, but this may not be the case for all cloud providers and for all cloud services. In some cases, increasing the portfolio of cloud services might instead lead to inefficiencies.

There is thus no clear evidence of economies of scope creating barriers to entry relevant to policy – even if they could, but as we shall see, even if they existed, economies of scale are not evidence of a barrier to entry relevant to competition law and policy decision making on the existence of market power.

The CMA however noted a potential further source of economies of scope not investigated

> 4.73 While we do not assess it in this section, we recognise that there may be economies of scope across cloud and non-cloud services, rather than just across cloud services.

To the extent this possibility was not investigated I assume it cannot be said to be important in any way to customers when choosing which cloud provider(s) to use, or probative in the CMA's attempt to prove barriers to entry or expansion, or market power.

Network effects

In this section the CMA describes the network effects the CMA is focusing on as follow. It begins with this first statement

> 4.89 If customers value having access to a large portfolio of third party services (via ISVs) through the cloud infrastructure providers they use, providers with a large pool of ISVs being hosted on their platform and/or listed on its marketplace would have an advantage over other providers. This could result in providers without a large pool of ISVs finding it harder to compete for customers.

This seems very similar to the "range of services effect" discussed earlier and repeats, or may be made to explain the point made earlier as follows that

> 4.70 Cloud providers typically offer a range of first party cloud services through their platforms and some also offer third party services provided by ISVs through a marketplace accessible by customers on the provider's platform. Marketplaces are used by eligible ISVs to offer their own services to the customers of those providers.

However these statements do not really identify a special or unique underlying reason why customers would value such an arrangement as "a large pool of ISVs" or "range of services" or "portfolio of products", or why providing one of these might pose an advantage to providers. In the same way people value items of food, or meals of different foods, people may value a large pool of ISVs. But firms compete with each other to provide food. They can thus obviously also compete with each other to provide "a large pool of ISVs" or "range of service" or "portfolio of products" too. There is no underlying theory of a barrier to entry or expansion here.

The CMA does then raise a relevant theoretical point about indirect network effects however in the next paragraph

> 4.90 This might be compounded if there are *indirect network* effects between cloud infrastructure providers, ISVs and customers. Indirect network effects may arise as follows:
>
> (a) The more customers that a cloud infrastructure provider has, the more attractive it becomes to ISVs because it provides them with access to a larger customer base and the more likely ISVs are to use that cloud provider's platform. ISVs may run their services on the cloud infrastructure of the provider and also list their services on its marketplace.
>
> (b) The more ISVs available on a cloud infrastructure provider's platform, the more attractive the provider becomes to customers (eg because they can access more ISV services on that platform) and the more likely customers are to use that provider's platform.

It is to be expected that the CMA would raise indirect network effects as a possible barrier to entry. What is strange is that it does no mention direct network effects anywhere in the PDR, unless this is what the first paragraph above 4.90 is referring to. In case this is true, and for completeness I will address both direct and indirect network effects in my discussion below of this point and assume the CMA is too.

Finally the CMA notes

> 4.91 To assess the strength of any network effects, we collected evidence from ISVs and customers.

The problem is that the evidence the CMA sought and the results of that evidence cannot be said to actually test whether there are indirect or direct network effects. Indeed it is not even the theory of direct and indirect network effects is even testable, let alone actually tested - anywhere. Certainly it is generally the theory of network effects and its role in competition policy is generally not very well framed or understood. In particular the important role of large proprietary firms (like cloud service providers) perform in internalising what would otherwise be network externalities, and in therefore turning network externalities into network effects, and thereby providing a public good is very little understood. This public good is put in jeopardy when the network effects that proprietary firms create by vertical and horizontal integration is turned against them as a feature that warrants competition law intervention and an uncompensated taking of their property rights.

The CMA nevertheless concludes

4.97 Range of services is important to customers, and ISVs appear to value a broad customer base.

4.98 Currently, customers perceive that equivalent ISV services are widely available, although this is mostly across the main cloud providers. Therefore, having a wide range of ISV services is not acting as a competitive differentiator, at least between the main cloud providers.

4.99 If the concentration in the market kept increasing, such that the incentives on ISVs to support smaller cloud providers decreased because the incremental customer base would not justify the investment, this could result in a larger gap between the services on the largest cloud providers relative to others as a result of ISVs reducing the breadth of suppliers these other providers support.

4.100 We consider that this could compound barriers to entry and expansion as smaller cloud providers would find it harder to offer such a wide range of services.

Again it is not clear on what theoretical or evidentiary basis the CMA makes the above claim in 4.100 as I discuss further below. It seems however the network effects are not a barrier to entry or expansion on the above basis.

Other potential barriers to entry and expansion

Under Other potential barriers to entry and expansion the CMA discusses

- Cloud credits
- Reputational barriers
- Regulatory barriers
- Public sector procurement

I review and comment on the CMA's discussion of each in turn

Cloud credits

The CMA describes cloud credits as follows

4.101 Cloud credits are a form of discounting by cloud providers. They work as follows:

(a) Cloud providers offer customer credits for free as an incentive to switch clouds or use their cloud more.

(b) Customers can redeem cloud credits against spend on cloud services.

(c) The amount of credits that a cloud provider offers can vary between customers, though providers tend to set limits on the amount of

cloud credits that they will offer by type of customer eg a start-up, an SME, an AI start-up, etc.

(d) Customers are aware of the amount of cloud credits they will receive in advance of using a cloud service - they are agreed upfront.

(e) Cloud credits are limited by time and/or by amount. If they are limited by both time and by amount and customers do not use them within the timeframe offered, they lapse.

4.102 Cloud credits are offered by a range of cloud providers:

(a) AWS offers start-ups up to $100,000 in AWS activate credits and up to an additional $300,000 in AI specific credits.

(b) Microsoft offers start-ups up to $150,000 in Azure credits.

(c) Google offers start-ups up to $200,000 in cloud credits and AI start-ups up to $350,000 in cloud credits.

(d) Oracle gives start-ups the ability to purchase discounted credits to scale.

(e) OVHcloud offers start-ups up to €100,000 in cloud credits.

(f) Some smaller cloud providers, such as Civo, also offer cloud credits.

4.103 As described above, many of the schemes from cloud providers are targeted at start-ups, although cloud providers also offer cloud credits to other types of customers.

The CMA draws the right provisional view in para 4.114 (below) that cloud credits are not sufficiently material to create a barrier to entry or expansion or result in harm to competition in the cloud services markets.

4.114 Our provisional view is that cloud credits benefit smaller customers, particularly start-ups and that they are small in value when compared to other discounts offered by cloud providers such as committed spend agreements and reserved instances. We consider that the impact of cloud credits is not sufficiently material to create a barrier to entry or expansion or result in harm to competition in the cloud services markets.

I would strengthen this CMA conclusion and note that cloud credits are highly pro-competitive and even offset or should be seen to eliminate the CMA's concerns discussed earlier with switching costs. This is evidence of a market solution to concerns that switching costs may be create a barrier to entry or expansion. Firms compete by offering to cover customers switching costs. Thus, cloud credits can be understood to result in significant benefits to competition in the cloud services markets and to consumers.

The CMA however expresses concerns about the future.

4.115 However, any harm arising from pricing and discounting by large cloud providers could become a potential commercial barrier for smaller providers in the future.

The CMA's suggestion that pricing and discounting by large cloud providers could become a potential commercial barrier for smaller providers in the future seems unlikely. In light of our analysis already and my later discussion of market power claims of the CMA, it is clear there is no market power in the cloud services, so there is no scope for cloud service providers to abuse that power through contractual arrangements (like cloud discounts) as competitors would counter and customers would go elsewhere. Any such contractual arrangements that restrained trade are also unenforceable in law and would not be self-enforcing as there is no market power that a cloud provider could use to enforce them. So, pricing and discounting cannot have an AEC to the detriment of consumers - and are unlikely to to do so in the future.

Reputational barriers

4.116 One small cloud provider said that there are reputational barriers to entry and expansion as customers perceive the large cloud providers to be superior and are seen as a safe choice for a Chief Information Officer when choosing a cloud provider.

4.117 Some customers also commented that they consider the large cloud providers to be more credible and capable than smaller cloud providers.

4.118 The Jigsaw report states: 'The main providers are seen as AWS, Microsoft and Google among participants. For some, this is the main or only consideration set in terms of who might even be on a shortlist of providers in the event of a review of the market or a switch, though most were not aiming to make any changes. They each have an excellent reputation, are seen to deliver a reliable service and offer a wide range of solutions that cover many needs.'

The problem with this evidence is that the CMA offer's no underlying theoretical economic analysis of why and how reputational capital arises. This reflects a more basic concern that perhaps the CMA implicitly falls foul of the errors found of highly simplified idealised perfectly competitive models (PCM) of markets from introductory economics mentioned earlier. PCM simply don't exist. Those who are prone to believe they do are prone to misinterpret unusual features of a market as anti-competitive when they are infact pro-competitive, and a solution to an underlying market failure One of the less ideal features of real markets is the underlying problem of information costs which do not exist in PCM models. Consumers face uncertainty about the quality of providers due to lack of information and need to incur the cost of actively searching to find information about providers, or trust to experience. What they need is a large number of observations on the providers performance with other consumers over time. The underlying theory is that a firms management practices will reveal a pattern of behaviour in the past that can be used to forecast its behaviour in the future. For example, the percentage and nature of cars of a particular car manufacturer that have defects may be used to predict future performance. Such predicted quality characteristics of a firm and its products affect the price it can charge in the market as consumers pay more for expected quality. The information needed consumers is therefore collected, analysed and communicated to consumers by various reliable

means in information markets, including through various forms of media, rating agencies and consumer groups and this coalesces into a firm's reputation as information, or as a signal of the firms expected product and service quality captured in its trademarked brand name, which becomes valuable intangible capital, its reputational capital, worth investing in. The trademarked brand signal of a firm is reliable, as it is protected by intellectual property law including trademark law, passing off and design laws so that lower quality firms cannot fake it and pass off as the firm - damaging the real firms reputation. This protects and encourages firms investment in quality and is pro-competitive.

Reputation does have the effects therefore the CMA reports from customers, outlined or in the paragraphs above. But this is because reputation signals quality to providers, and solves an information problem, and is pro-competitive – it facilitates and encourages entry and expansion by high quality firms, and investment in better quality, and better quality innovations that all greatly benefits consumers .

The CMA finally comments however that

> 4.119 It also said that AWS is commonly seen by customers as a 'first mover'. There was a sense that other public cloud providers are catching up but there is still a reputational advantage

First mover advantage is often misused as a bad thing in competition law circles, so it is worth commenting further on this to be clear. AWS having a "first mover" advantage reputationally is not a barrier to entry, or a feature that has an AEC to the detriment of consumers. Quite the opposite it is a feature that is the result of pro-competitive forces benefiting consumers. A firms reputation itself is a pro-competitive influence on markets, it challenges other firms to be better. AWS was only able to succeed first, and become a first mover because it could protect its trade name and reputation and built its reputation capital. The rewards from doing that provided the incentive to do it. It solves a market failure called the lemons problem. AWS performance however is clearly something that others can replicate and out-perform if they are efficient. Reputation does not pose a barrier to efficient or more efficient firms entry or expansion

The CMA's assessment of this feature then that to quote:

> 4.120 Our provisional view is that there may be some reputational barriers to entry and expansion in the cloud services markets.

is therefore a very dangerous conclusion. There is no reasonable economic theory or evidence that can identify how reputational capital can pose barriers to entry and expansion in the cloud services markets. Reputation is not a feature of a market that can have an AEC to the detriment of consumers relevant to the CMA's cloud market investigation for reasons outlined above.

At this point it seems the CMA is simply going through a long and expanding list or building a large pile of unreliable and poor data and information on market features that are not barriers to entry (market shares, switching, economies of scale and scope, network effects and now cloud discounts and reputation effects etc). Information, data and analysis on each item in this list that does not on a stand-alone or individual basis serve to reject the hypothesis that the cloud services market is competitive, does not suddenly become part of a body of evidence of AEC when it becomes part of a large pile of other unreliable information in that regard either. A larger pile of unreliable information is probably more unreliable than any individual item of unreliable information. It misleads in aggregate by sheer weight or mass potentially, and like a cacophony of sound signals, creates more noise than light .

Regulatory Barriers to entry

In this section the CMA considers barriers to entry and expansion that could arise from regulations and from public sector procurement.

On each it concludes there are not barriers to entry under this heading.

> 4.128 While cloud providers may face some costs associated with customers' regulatory compliance, in particular in sectors such as financial services, we have not identified any material regulatory barriers to entry and expansion in cloud services in the UK

> 4.133 We have seen some inconsistency between the central policy and individual strategies. In particular, we found two instances of policies appearing to specify the use of 'hyperscalers'. However, overall, we have not seen any evidence that public sector procurement practices are harming competition.

These final conclusions on regulatory barriers in cloud services markets seems reasonable. In other markets or industries (like those regulated by Offcom) one has legacy advantages from past legal monopolies, fiscal subsidies and state ownership that justified competition law oversight of key beneficial of these advantages.

Two concerns arise here.

1. The first is that the CMA does not report on cloud service providers views on the barriers to entry and expansion in the UK created by CMA and UK Competition law and the new DMCCA. Presumably views on the DMCCA can be found in submissions made in the development of the law As discussed earlier and below regulatory failure involving unjustified threatened and actual uncompensated taking of property rights of proprietary firms that have never benefited from legal or fiscal advantages poses a major feature of digital markets in the UK at the moment posing the greatest AEC of detriment to consumers. Its not even being measured as a cost

to future consumers – let alone it appears factored adequately into analysis as a central concern

2. Second the focus on regulatory barriers seems to be on direct costs or compliance costs issues rather than the larger opportunity costs and foregone for economic growth, or future consumers benefits of threatened and actual uncompensated takings of property rights of proprietary firms that have never benefited from legal or fiscal advantages under UK competition law and the DMCCA, and through EU regulation which the UK can still bear some influence on.

The second point is reflected in the following paragraph from the PDR where the feedback focused on operations, for example diverting resource from delivery and innovation onto compliance

> 4.125 Many cloud providers, commented on their overall regulatory burden, including European Union legislation (most notably the Data Act), and the impact this had on their business. But they focussed on the broader consequences of this for their operations, for example diverting resource from delivery and innovation as opposed to representing barriers to entry or expansion.

Provisional conclusions

The CMA's provisional conclusions on barriers to entry and expansion are as follows:

> 4.137 We have provisionally found substantial barriers to entry and expansion in the provision of cloud services, in particular for IaaS.
>
> 4.138 Market entry and expansion in the supply of IaaS requires significant capital investment in fixed assets, which for many asset types would be largely irrecoverable upon exit. This combines with economies of scale, whereby the larger providers have comparatively lower ongoing costs.
>
> 4.139 Unless a new entrant (or company seeking to expand) is willing to make investments of a similar magnitude to those of the largest suppliers, it is likely to face higher ongoing costs to provide an equivalent level of service and so may struggle to compete effectively. This is disincentivising IaaS market entry and expansion.
>
> 4.140 Furthermore, given the scale of investment and expansion that large cloud providers, have made to date in IaaS, any new entrant would need to invest substantially more than the large existing suppliers in order to close the gap in a timely way. The levels of investment that AWS and Microsoft are expecting to make in the coming years may raise these barriers even higher.

4.141 While we recognise that investment by cloud providers may have pro-competitive effects and benefit customers, this does not preclude them also having the effect of deterring market entry.

4.142 The wide product portfolios of the larger cloud providers also contribute to the barriers to entry and expansion in both IaaS and PaaS markets because range of services is an important consideration for customers selecting a cloud supplier and ISVs value access to a wider user base.

CMA's provisional decision that there are substantial barriers to entry and expansion in the provision of cloud services, in particular for IaaS in summary seems to be solely based on its views on

(1) Sunk Investment costs
(2) Economies of scale and
(3) The wide product portfolios - which as outlined above I believe refers to
    (a) Economies of scope and
    (b) Network effects (direct and indirect)

I comment on these further below

Comment on the CMA's provisional decision of Barriers to Entry and expansion

A first key point to make is that the CMA claims it has "found substantial barriers to entry and expansion" yet it does not put a figure on the scale of these barriers in terms of direct and opportunity costs. It also does not define the benchmark against which it sets the "substantial" threshold for further investigation - and judges they are substantial. It sems impossible to claim the barriers are substantial, without quantifying or measuring them and having a benchmark against which to assess them as to scale.

The CMA has to prove to a high standard of proof that there is a feature of the market creating an AEC to the detriment of consumers over time – and that detriment has to be substantial. A further complicating point in relation to measurement then is isthat the CMA not only has to prove and measure barriers to entry and expansion of a scale that create *market power*, the CMA also has to identify *conduct or abuse of that market power.* The latter is the feature of the market that creates an AEC to the detriment of consumers over time. In other words market power itself is not a feature of a market creating an AEC to the detriment of consumers over time in, and of itself or per se. The CMA has to prove more than barriers to entry and market power.

Firms can have market power but not abuse it. Market power is only a necessary condition for abuse of market power or features of the market creating an AEC to the detriment of consumers over time. Market power is like oxygen to a fire, it is necessary to there being consumer detriment, but not sufficient. It can inflame consumer detriment, the stronger the market power, or the greater the barriers to entry, the greater the potential AEC and detriments to consumer there can be from abuse of that power.

A suitable shortcut benchmark for assessing market power is to measure the direct costs (compliance) and indirect or opportunity costs of the likely uncompensated takings of property rights through CMA interventions in cloud services markets over time. If the consequences of such CMA intervention are likely to be substantial it's better to live with substantial potential AEC detriment, and therefore substantial barriers to market entry and expansion. If the consequences of such CMA intervention are small then intervention can be triggered with only small potential AEC detriment, and therefore low barriers to market entry.

It seems likely that consequences of such CMA intervention in cloud service market are likely to be very substantial even enormous for the UK, given the rate of growth of Cloud services market and how integral it is to downstream AI and other developments, and the ability to bypass UK competition law offshore. The potential UK AEC detriment, and therefore barriers to market entry in the UK of concern have to be enormous to justify further investigation. The costs of such CMA intervention in cloud service markets seem likely for example to dwarf the meagre costs the CMA suggested for the costs of an abuse of market power in the cloud services market like a price rise constituting 5% of revenues of 9 million.

The fundamental and reason the has not and cannot measure market power and judge its consequences and therefore whether they are substantial is that the CMA does not define barriers to entry and expansion in a way that enables it to identify features of a market that might have an AEC to the detriment of consumers over time, and so it cannot measure them and judge their scale therefore. I discuss the critical issue of definition further below.

Defining Barriers to entry and expansion

Stigler has offered the best definition of a barrier to entry as the costs a new entrant has to incur that were not incurred by the incumbent. The key driver of competition then are the barriers to entry or costs facing new entrants to a market that were not incurred or are not faced by an incumbent, and that therefore blunt stronger competitive conditions or forces. As we shall discuss below

1) Economies of scale in production and consumption (including direct and indirect network effects) and economies scope (including portfolio effects) that are available to incumbents and new entrants do not create barriers to entry and expansion relevant to competition law analysis. They are relevant to analysis of the benefits of economies of

scale, and the harm from proposed regulation, that takes the property rights and interferes in contracts of firms that deliver large economies of scale without compensation, and therefore deters the realisation of such economies, and encourages or supports higher cost smaller firms and new entrants and unnecessary duplication of fixed costs. Economies of scale deliver the benefits of lower unit costs per unit of output, greater productivity, greater output, lower prices and therefore wealth (including for consumer's pension fund investors) - they are not barriers to entry relevant to regulation. Regulation is meant to be designed for the benefit of consumers, yet regulation of the most efficient firms that have reaped the greatest economies of scale and scope, and that inevitably involves taking the property rights and interfering in contracts of these most efficient firms without compensation, will ultimately harm consumers. It is not clear why the CMA seems to think economies of scale are relevant barriers to entry – all incumbents and new entrants face the same scope for economies of scale.

2) An exclusive legal privilege or license granted to an incumbent by regulation and/or a subsidy, or tax concession granted to an incumbent, that is not available to a new entrant would constitute barriers to entry to new firms relevant to a regulator. A regulator should then be tasked or have a duty to ensure the incumbent beneficiaries of a subsidy, tax break or regulatory favour do not take advantage of this barrier to entry and abuse the market power or privilege this confers on them. The CMA's conclusion seems correct on this score or that there are no particular regulatory barriers to entry or expansion in the UK.

Economies of Scale and scope

Economies of scale (in production and consumption) and scope do not pose barriers to entry relevant to competition law analysis. They are interdependencies and effects that do not relate to barriers to entry, as they are available to all firms incumbent or new entrant. Thus the economies of scale in production the CMA focuses on due to high levels of capital investment required in IaaS, and economies of scale in consumption the CMA focuses on due to alleged indirect network effects between ISVs and customers boil down to the same fundamental and general phenomena long recognised in economics, and all best simply called scale economies, that may arise both in consumption and in production.

So too with economies scope, and portfolio effects, from supplying a range of services that the CMA focuses on. They too are simply interdependencies and effects that do not relate to barriers to entry or expansion, as they are available to all firms, incumbent or new entrant. They are not barriers that a new entrant faces that an incumbent didn't.

These interdependencies whether scale or scope economies have long been known in economics and may lead to it being efficient for a market to be served by one or a few firms. What is new is the transformation wrought by digital technology over the past 30 years, which has brought with it the inclination to introduce new terms, for old phenomenon like "network

effects", "two-way effects", "direct network effects", "indirect network effects", "uni-directional effects" and "bi-directional effects. These are all simply interdependencies and whether due to economies of scale in consumption and production, or from economies of scope or portfolio effects, these interdependencies can be internalised by contract in markets, or through ownership.

Economies of scale and scope are fundamentally of value to consumers and society. Consumers can obtain lower prices or value or quality from firms who enjoy economies or scale and scope. Firms and therefore societies have to devote fewer scarce resources to production. Society benefits as there are fewer firms replicating costs to supply a market at higher average cost that can be achieved by fewer or even one firm. Economies of scale that leads to "tipping" "winner takes all, high concentration, lack of switching and lack of multi-clouding etc. therefore go primarily to an analysis of harm, or benefits and costs - not to an analysis of barriers to entry

The first point to note then is that economies of scale (in consumption or production) are beneficial, and contribute significantly to enhancing consumer benefits and the living and working conditions of people. Economies of scale contribute to what an economist calls "consumer surplus" (relating to living conditions) and "producer surplus" (affecting working conditions). Secondly these economies of scale may also mean it is efficient for one firm to serve all or a significant part of a market.

Depending on the extent of economies of scale and scope it may be efficient for there to be only 3-4 large infrastructure, platform, and software service providers perhaps differentiated in product offering and customer base (like most markets) and "less multi clouding". This may be efficient or due to lower unit cost and price paid, and better matching of product qualities to customer tastes. In an extreme outcome it may be efficient for all or most consumers to "single cloud" and one infrastructure, platform or software firm become extremely dominant, if not a sole-seller or a "natural monopolist".

The economies of scale (including "network effects") and scope, and a lack of switching and "multi clouding" highlighted by the CMA are thus simply the result of a competitive market and are more importantly efficient outcomes in markets that ultimately benefit consumers. The point then is that they are not technically sources of relevant barriers to entry that cause harm and justify regulatory action from a regulatory policy point of view – even though they may be described as barriers to entry in "pop-econ" terms by less efficient providers.

No doubt, where there is potential for significant economies of scale, or scope a small-scale single product firm will be relatively less efficient, and therefore less able to compete and deliver service at a lower price than an incumbent larger scale firm. The scale and scope economies of the larger more diversified firm may then be said to "deter the entry or expansion" of a rational small firm. But economies of scale is not a barrier to competition or a "barrier to entry or expansion" relevant to total societal welfare, or consumer welfare - or a competition regulator.

Simple economies of scale and scope are not relevant barriers to entry for competition law analysis. To realise economies of scale an incumbent would simply have had to invest enough to fully realise production cost economies, consumption or network economies and/or scope economies and encourage consumers to happily "cloud" with them. But this is what a new entrant will have had to do to realise production cost economies, consumption or network economies and/or scope economies too. Both parties face this challenge. The challenge is not "unfair" or a relevant barrier - it is just a reality – given the fixed costs, network and scope economies of business.

To regulate to protect and enable a less efficient smaller scale less diversified firms expand or enter the market e.g. by requiring an incumbent to grant access to their assets below their efficient cost will only encourage excessive entry, and inefficient competition, lower beneficial network effects and production economies and lead to a waste of resources and lost opportunities and welfare. The purpose of competition law and regulation is to promote competition in order to promote social welfare – not to protect particular competitors (incumbent or a new entrant) that may be relatively higher cost or less popular.

Regulatory and Fiscal Barriers to Entry

If an incumbent was however granted an exclusive legal privilege or license under a regulation, and/or fiscal subsidy, and/or tax concession (as was BT), that is not available to a new entrant then those exclusive benefits conferred by regulations, subsidies, and taxes would constitute barriers to entry to new firms relevant to a competition regulator. A competition regulator should then be tasked or have a duty to ensure the incumbent beneficiaries of a subsidy, tax break or regulatory favour do not abuse the market power or privilege this confers on them, but rather delivers on the assumed purpose of the subsidy, tax break or regulatory favour – namely greater social or consumer welfare – rather than engage in conduct that adversely effects competition and unnecessarily and significantly harms consumers as a result.

As noted the CMA's conclusion seems correct on this score or that there are no particular regulatory barriers to entry or expansion in the UK. There is a need however to continue to monitor the use of state aids that may advantage some firms over others to the detriment of competition.

Misappropriation of Property Rights

Finally, it was noted by a judge in one of an early competition law case that the only limits to competition are the property rights of others.[53] Misappropriation of property (by a regulator, or by market player through theft, passing off, or breach of IP) can give rise to two competition problems:

[53] Per Lord Halsbury Mogul Steamship Co Ltd v McGregor, Gow & Co [1889] LR 23 QBD 598

a) Barriers to expansion by a rival due to misappropriation of property. Under this first problem misappropriation of the property of a rival, or a third party like a supplier will create clear barriers to a rival's expansion by legitimate means, and distort competition.
b) Barriers to entry by a new player, due to misappropriation of the property of a rival, supplier or other third party. Under the second problem an incumbents misappropriation of a supplier or other third party's property will clearly create barriers to market entry by new entrants

These effects may further occur upstream or downstream from where the misappropriation of property occurs. This is clear when one company steals the property of another company, and uses it to compete with that other company in any market. Similarly when a company misappropriates the property of third parties including suppliers, this may lead to distortion in competition in upstream or downstream markets.

The adverse effects of misappropriation of property on competition and market outcomes is one of the reasons why competition law regulators should be careful not to intervene with price controls, and/or regulation of other contract terms (like discounts and egress fees) generated in competitive markets without compensation. In doing so they would in effect be engaging in a state taking, or misappropriation of property rights, and interference in contract rights without compensation, burdening the market players who are regulated, and benefiting others, thereby distorting or adversely affecting competition, and ultimately harming consumers, and encouraging wasteful rent seeking.

Countervailing Consumer power

The fourth important competitive condition driving market power of incumbents is customer, or buyer countervailing market power shown to the right of the above diagram. The biggest users of CSPNC tend to be large corporations (including digital platforms) and Governments that will have significant market power.

As the CMA itself notes

> 2.6 Large companies are the major customers for cloud providers: evidence shows that a small number of high-spend customers account for a significant proportion of providers' UK revenue and a large number of low-spend customers are responsible for a small proportion of their revenue. In particular, for AWS, Microsoft and Google, the top [10-20]% of customers account for a very large majority of revenues and the top [0-5]% account for over half of revenues.
>
> 2.53 (c) Large enterprise customers – for example, classified by one provider as those with an estimated spend of over £1 million per year– generally procure cloud services through bilateral negotiations with providers. A cloud provider said that this allows a range of customers, including those with higher annual contract values, to secure bespoke contracts tailored to their needs.

The above statistics alone imply CSPNC providers face considerable countervailing market power. Further adding to the conclusion that the major CSPNC players (AWS Microsoft etc.) have very little market power and that the market is highly competitive.

This only increases the burden on the CMA to prove with strong evidence that the market is not competitive. At the same time this evidence on further weakens the CMA's ability to disprove the market is competitive, and maintain its theory of harm(s) hypothesis, as the strength of the evidence it can draw upon to justify further investigation of and intervention in the market further declines.

Countervailing Supplier Power

The fifth and final important competitive condition driving market power of incumbents is countervailing market power of suppliers shown on the left of the above diagram. The main CSPNC market providers (which includes accelerated compute) clearly face significant countervailing market power from key suppliers. In particular Nvidia.

The CMA cites evidence that points to the importance of supplying accelerated compute.[54] NVIDIA has become the dominant player in this space. NVIDIA's leadership and countervailing supplier power is illustrated by the fact that in mid June 2024 Nvidia's market value rose past $3tn to overtake Apple as the world's second-most valuable company after Microsoft. As the CMA notes "Microsoft also said that NVIDIA has a 'virtual monopoly' on the accelerator chips "[55]As the CMA notes Nvidia itself said: '[O]ver the next 5 years … data centers across the world will be reconfigured as accelerated computing data centers, moving away from traditional hardware and software solutions towards an infrastructure that can also effectively deploy generative AI.'[56]

NVIDA's leadership does not however pose a barrier to entry. As the CMA notes "There has been entry by smaller, specialist cloud providers (ie specifically offering compute to AI developers), including CoreWeave, Lambda Labs, and a number of others, which provide access to Nvidia's market-leading GPUs"[57]

This above clearly implies however that CSPNC providers face considerable countervailing market power from their suppliers. Further adding to the conclusion that the major CSPNC players (AWS Microsoft etc.) have very little market power and that the market is highly competitive. This again only increases the burden on the CMA to prove with strong evidence that the market is not competitive, yet at the same time further weakens the CMA's ability to disprove the market is competitive, and maintain its theory of harm(s) hypothesis.

[54] WP1 page 147 para 8.14
[55] WP1 page 146 para c(ii)
[56] WP1 page 147 para 8.14 (a)
[57] WP1 page 153 para 8.33 b

We have covered the key reasons why the CSPNC market is competitive. In fact, the evidence the CMA could draw upon to refute the hypothesis that the CSPNC market is competitive runs out at this point. The CMA however has one final and erroneous resort to measures of "profitability" as a "strong indicator of market power". As we shall see the "profitability" it reports on is clearly not strong evidence of market power in the CSPNC market. Rather if anything it is strong evidence of the inflated new demand and therefore competition for capital relative to its supply in the new market, industry or innovation, - as well as the high degree of risk and uncertainty associated with the new innovation, market, or industry. In short the market is in fact competitive and contestable or open - but also innovative, young dynamic and fast evolving, and as result short on capital and high in risk and uncertainty justifying high rates of profitability –- as discussed in the following and last section on market power in the CSSP market

Profitability

The CMA claims that profitability can be a strong indicator of market power

> 3.138 High and stable or increasing shares of supply can be a **strong** indicator of market power, …. alongside other indicators, such as high barriers to entry and expansion, **high profitability** and high barriers to switching.

> 3.503 In terms of market outcomes, we have provisionally found that AWS and Microsoft's cloud businesses (Microsoft Cloud & Enterprise and Microsoft Azure) have had sustained profits (as measured by the return on capital employed) substantially above our estimated cost of capital for a number of years.

The CMA appears to take its evidence on profitability, market shares, switching and together to suggest AWS and Microsoft's have strong market power attributable to barriers to entry, yet none of these indicators are reliable direct indicators of barriers to entry.

Thus the CMA comments that

> 3.504 Our provisional view is that evidence on market shares and profitability indicate that AWS and Microsoft each holds a strong position in the IaaS and PaaS markets.

In this regard the above CMA comment on switching that

> 3.377 We have found that full switching is extremely rare in the market. …. we consider such a low level of switching together with high levels of profitability among the largest providers **to be consistent with** the presence of high barriers to switching

Comment

The CMA's analysis and conclusion on profitability in the CSPNC market is fundamentally flawed given the nature of the market or subject being studied, its high level of **risk**, high rate of **innovation**, and high **demand** for **investment** or early stage of evolution and superior efficiency. AWS got started in renting excess capacity in CSNP(Cloud) services in 2006, Microsoft later, then google, demand grew very quickly, innovations in CSSP technology more quickly and in the last 5-10 years demand for CSSNP with AI etc. has taken off, accelerated CSSP is clearly an emerging substitute for standard CSSNP etc. etc. The null or working hypothesis about the state of competition in the CSPNC market has to be that it is competitive - amongst aware of the state of the CSPNC - it is replete with a high level of risk, a high rate of innovation, high demand for investment, and superior efficiency. It is this fact that ought to be at centre stage and the focus of the CMA's analysis

The problem is the CMA appears to be completely ignoring or belittling and side-lining the actual context of the CSPNC market and the lessons of economic history. In history major value creating technological innovations and enhanced efficiencies like those we are observing in the CSPNC market and the ICT and AI revolution more generally today or over the past 10-20 years and that are accelerating - innovations and efficiencies that transform the wider economy - are very rare. But where they occur the value generated by the innovation and greater efficiencies typically leads to high rates of profit for extended periods during the initial stages of the innovation. The high rates of profit do little more than reflect the high risk yet high expected value being created and the urgency and extent of demand for the innovation and its application throughout the economy.

Innovation creates new demand curves for the new technology that reflects the **risk adjusted** expected value the technology can create. The new demand for the ultimate outputs or value created any the technology creates a high level of new derived demand for capital to in turn invest in the acquisition or employment of other inputs like land and labour and the creation of whole new production processes and downstream activities like marketing and distribution. The new demand for capital in short then faces a scarcity of the capital to invest in growth. Like anything this drives up the price of capital or rate of return offered, or profitability required to attract capital and out compete demand for capital in other more mature industries.

Capital has to be compensated at a higher rate of return to capital to compensate for the high risk and uncertainty associated with a new innovation, and its associated new industry, market(s), products or ways of doing business. There is no data to predict outcomes and there is inevitably considerable variance due to mistakes around an upward trend in realised value.

What may look like *supernormal profits* associated with a new innovation during an initial extended period of innovation and its application may in fact be just normal profits, once one adjusts for risk and uncertainty associated with the innovation and the markets growth and

evolution. Normal profits are defined as profits above the opportunity cost of capital, or the returns that can be *earned elsewhere*. If one references normal profits to profits made in mature less risky and uncertain industries then this can overstate the degree of supernormal profits. What look like supernormal profits are often simply explained by the inflated new demand for capital relative to its supply in the new industry or market(s), and the high degree of risk and uncertainty associated with a new industry, market(s) or innovation.

A significant part of the perceived supernormal profits is simple compensation for the high levels of uncertainty and risk associated with new innovations, and therefore on an adjusted basis constitute, or are equivalent to normal profits in a less risky and more certain mature industry. Profits earned in a new, risky, uncertain, innovative technology and its associated market(s) with heightened demand for new investment may look highly profitable compared to returns earned in less risky uncertain, less risky, less innovative mature industry– but the high relative profits – or relative price of capital- do not correlate with weak competition in the new, risky, uncertain, innovative technology and markets. The new innovative market is on the contrary typically highly competitive - people are literally scrambling to succeed

The high rates of profit during the initial extended period of innovation, risk and uncertainty and inflated new demand for capital reflect the uncertainty, risk, strength scale and speed of the underlying value creation process driven by the new technology. Thus higher than normal profitability is just a signal of a healthy fast growing innovative industry and the higher than normal rate of return to capital compared to more certain mature industries just encourages the required capital to be invested in the new industry to facilitate its growth. Capital as a result moves from more mature markets where a lower profit is being made to the innovative new one where a higher normal one is being made.

In the long run as uncertainty and risk and the rate of innovation decline and more capital is reallocated to the new industry at the margin increasing supply of capital, and the profits earned are reinvested in growth, the profitability and rate or return falls – and the relative price of capital in the industry falls as it becomes more certain or mature.

High profitability in a new, risky, uncertain, innovative technology or way of doing business (etc.) and its associated markets like CSPNC then is NOT evidence the CSPNC market is not competitive, if anything its evidence it is highly competitive – that there is strong competition for capital. The high profitability can also be sustained by on going waves of innovation and efficiency including learning by doing.

The Profitability, Market shares and Switching Data Combined

The evidence on high profitability, high market shares, and low switching cited together is consistent with a competitive market. The evidence certainly does not refute the null hypothesis that the market is competitive. A low level of switching is consistent with a competitive market, an efficient switching outcome in cloud services given high transaction costs an a low value to switching at the margin. High but *normal profits* to compensate for

investment and innovation risk in a new, risky and innovative business, like cloud services is consistent with a competitive market, an efficient outcome in cloud services. High market shares can also reflect an efficient market with economies of scale.

The combination of data on high profitability, high market shares and low switching is clearly then consistent with the market being competitive and efficient. None of these indicators (high profitability, high market shares and low switching) are individually reliable direct indicators of market power and/or barriers to entry. They are weak, and noisy signals, and poor evidence on a standalone basis. They can easily occur together because they are simultaneously caused by efficiency and other factors other than market power. They do not refute the null hypothesis that the market is competitive

The CMA should be looking for strong and direct evidence that disproves the market is competitive to a high standard – like legal barriers to entry - not evidence that is merely consistent with the being competitive or non-competitive. In the absence of strong evidence – move on – don't keep working on collecting unreliable data and analysing, combining and reporting on it.

Quite simply combining elements of unreliable information on a topic does not provide reliable information on the topic. More unreliable information is not necessarily better than less. Unreliable information on market power (like market shares, switching, and profitability) may be even more unreliable when combined, than the individual items on a stand-alone basis, as the combined information may have a greater tendency to mislead in aggregate, the sheer weight or mass of it potentially being intuitively misguiding compounding underlying measurement errors. The risk with the CMA's comment for example, that low switching and high profits is consistent with high barriers to switching - and by implication therefore weak competition- is that it connects or associates the two phenomenon in the mind of the reade r- low switching and high profits on the one hand – and weak competition on the other. The Similarly the risk is that any CMA suggestion that combined evidence on high profitability, high market shares, and low switching is *consistent* with AWS and Microsoft's having strong market power attributable to barriers to entry, appears to imply that such data when found together refutes the null hypothesis that the market is competitive . But this is quite simply not true.

Conclusion

The CSPNC (cloud services) market has no legal barriers to entry and expansion creating incumbent market power, and any attempt to have an AEC would lead to punishing competitive responses from other incumbent firms and new entrants, and both customer and supplier switching and countervailing responses, with the parties to the agreements themselves reneging on any anticompetitive part to the deals or failing. For reasons I have outlined in detail above then the null hypothesis that the market is competitive should be retained. Conduct or behaviour having an adverse effect on competition (AEC) that detrimentally effects consumers is thus very unlikely

These conclusions appear obvious from the outset, and so a more fundamental point I make is that it is very premature for the CMA to be conducting a public inquiry into competitive conditions in the CSPNC market. Indeed the CMA decisions to continue its investigation and recommend DCCA remedies seems unreasonable, seriously unfounded and even ultra vires or beyond its jurisdiction. The CMA was not set up to investigate clearly competitive markets. The CMA's inquiries into the CSPNC market is more likely to lead to a lessening of competition than the agreements being investigated.

C. Abuse of Market power in "Cloud Services"

In the PDR Summary chapter (Pages 15-16), the CMA presents its provisional decision on competition as follows and claims to have identified egress fees and technical barriers to switching as feature(s) of the UK cloud services markets that lead to an adverse effect on competition as follows

> 30. We have also provisionally found that there are technical barriers and commercial barriers in the form of egress fees to switching and multi-cloud that harm competition in cloud services in the UK by locking customers into their initial choice of provider which may not reflect their evolving needs and limiting their ability to exercise choice of cloud provider. These barriers can restrict customers from responding to attractive offers or accessing innovative new services from another provider, leading to weaker competition between providers.

I discuss these claims about technical barriers and egress fees in turn In short theoretically

Technical Barriers

Technical barriers to entry are not relevant to the investigation if they are purely exogenous physical or engineering constraints that limit what is feasible. If this is true then such technical barriers are like scarcity, and although they limit what customers can do, customers have to live with them as best they can, and there is nothing the CMA can do. Moreover both incumbents and new entrants will have to face the same exogenous physical or engineering constraints that limit what is feasible including technical switching costs. So such technical barriers do not have an adverse effect on competition they are even handed So to favour a new entrant over an incumbent or one incumbent tyring to expand over another incumbent would be inefficient and anti-competitive, or deter competition and would only serve a costly redistributive aim,

If there are choices that can be made about technical barriers (e.g. to mitigate them as the CMA suggests then they are not best described or analysed as technical barriers, but as economic constraints, that are the subject of choices, but involve costs and benefits. In competitive markets (like the so called IaaS, PaaS and Saas markets the CMA focuses on) technical barriers of this type, which customers may face, will tend to be optimal. As the markets are competitive and if one firm adopts an inefficient or suboptimal technical barrier that harms consumers, its competitors will be able to out compete it, and

be rewarded by adopting more efficient technology choices and providing better services to consumers, if it can provide better value at a given price.

As outlined above the CMA's public cloud infrastructure services market being investigated by the CMA is competitive. The CMA has not been able to provide reasonable evidence to disprove this. So further market investigation on the technical barriers by the CMA is not worth itr for the same reason as the CMA theories of excess egress fees. Inefficient technical barriers adopted by a firm would impose economic costs on the firm. They then could not recoup these costs, or pass them on if the market is competitive.

The CMA's evidence and its theory of harm from technical barriers simply do not justify the cost of any further inquiry into the matter and especially not into potential remedies. There is simply no need for, nor benefit to CMA intervention, or the potential "remedies" the CMA lists - only costs. The costs of the CMA's proposed interventions or potential "remedies" (without any offsetting benefit) rise in ascending order of costs, and degree of AEC and consumer detriment of the remedy in accordance with the degree to which they involve uncompensated takings of property rights of the firms regulated.

Thus on the CMA's proposed interventions or "potential remedies" options mentioned in Paragraph 9.4 of the CMA report, their costs rise in ascending order of costs (without any offsetting benefit) as follows

- Voluntary principle-based requirements.
- Voluntary standards,
- Mandatory principle-based requirements.
- Mandatory standards

Similarly with the other *mandatory* "potential remedies" or uncompensated takings of property rights of the regulated firms also involve costs (without any offsetting benefit). On these one has in order of ascending cost (and degree of uncompensated taking of property rights and interference in contract terms)

- Increase transparency around the interoperability of cloud services; and
- Improve the portability of skills between cloud providers.
- Improve the interoperability of cloud services, through the use of abstraction layers;
- Increase interconnectivity and reduce latency.

Egress Fees

Theoretically egress fees cannot have an AEC, as the CSPNC market is competitive and contestable. As discussed above there are no barriers to entry or expansion. New entrants only have to incur the same cost of entry as incumbents, and the cost of expansion of those in the market are the same for all. There are thus fundamental theoretical problems with the CMA's analysis and continued investigation into egress fees.

1 First Contracting in its entirety: The CMA's theory of harm fails to look at contracting in its entirety. If a contract includes egress fees then in a competitive market there is likely to be an adjustment in the "headline" price of service, or other terms governing supply behaviour that compensates the buyer of CSPNC for the net expected cost of Egress fees. In a competitive market if one charges egress fees above the going market rate (excess egress fees) one will lose customers, and or have to

charge a lower "headline" price below cost, or offer other costly compensating terms or other costly "compensating inducements" or that offer the customer a compensating benefit. The customer will then benefit from these terms up to the point of egress. All these compensating adjustments or inducements in the contract will be more costly than offering the market egress fee rate, and so will cost the CSPNC firm upfront or in the short run. It is not clear why a CSP firm would do it then unless it is in the hope that they will be able to recoup these opportunity costs later by locking the customer in with the excess egress fee and exploiting that to earn above market prices or other terms later. It is not clear why a rational customer would not foresee this competitive risk however, and require that other terms would then have to adjust to compensate further and commensurately as well - further disadvantaging the firm. The CSPNC firm charging excess egress fees would have two opportunity costs up front. First the cost of subsidising or "paying" compensation, or an inducement in other terms of their contract to those accepting excess egress fees terms above market rates or above direct and opportunity costs to induce them to sign up. There is also the second cost of losing new customer flow involving those who rationally choose to stick with market terms offered by other firms rather than incur the risk of the excess egress fee and lock in etc.

2 Second Recoupment. The CMA's theory of harm also falls foul of a recoupment problem that makes the "excess" egress fee behaviour both irrational and unlikely. The CMA's theory is that a CSPNC provider could charge excessive egress fees, and incur the up front cost of compensating inducements and foregone new customers, in the hope the egress fees will lock the contracted consumer in, and enable the CSPNC firm to later recoup the short run opportunity costs of the compensating inducements and lost new customers. The CSPNC firm might charge excess egress fees the theory goes if they expect to be able to lock the customers in with the egress fees, and recoup the short run opportunity costs of inducements and losses by charging above market fees to contracted customers over time, as the egress fees lock them in. In the absence of other barriers to entry or expansion however (discussed above) the CSPNC firm hoping to charge excess egress fees in the future will end up not able to recoup their initial direct and opportunity costs. The reason why is that as soon as they try to recoup their inducement costs, contracted customers will simply switch to take up market contract terms from other providers having enjoyed the benefits of the inducements. They will not accept the added burden the CSPNC firm seeks to impose on them in addition to the excess egress fees. They are likely indeed to just simply switch, and multi-cloud, without paying the excess egress, or perhaps part pay a "going market rate", and leave it to the CSPNC firm to sue for damages to recover the excess fee.

3 Third Contract enforcement. The third problem is that under the ancient common law doctrine against restraint of trade egress fees that are overly restrictive of competition and harm customers will not be enforceable contract terms. Such terms in contracts are not enforceable and can be severed by the courts. Thus the CSPNC firm that seeks to negotiate excessive egress fees that restrain competition will find their contract term unenforceable. The contract terms will only be enforceable if the contract is self enforcing, or if in other words the above market egress fees are offset by other terms of the contract, and so there is no incentive for the contracted customer to switch or multi-cloud, and there is no barrier or lock in or scope for abuse of market power or AEC.

In short then theoretically egress fees cannot have an AEC, as the CSPNC market is competitive and contestable. As discussed above there are no barriers to entry or expansion. New entrants only have to incur the same cost of entry as incumbents, and the cost of expansion of those in the market are the same for all. This means there is no scope for recoupment of the inducement costs of excess egress fees. The CSPNC firm's upfront opportunity costs of compensating inducements, and new customer losses cannot be recouped by for example putting prices up above market rates later for contracted

customers, as the CSPNC firm's competitors will expand and new entrants will enter to take their customers off them, and customers will switch and avoid the AEC. In addition excessively burdensome egress contract terms are not enforceable under the common law doctrine of restraint of trade.

D. Evidence of Harm & Remedies and Regulatory Failure

Evidence of Harm

There is no evidence of harm from egress fees, on the contrary the only egress fees that will survive in the market are egress fees with benefits.

Similarly, there is no evidence of harm from technical barriers as the only and technical barriers that will survive in the market are not technically barriers to entry or expansion but an ordinary cost of doing business that all incumbents and new entrants face, and all need to compete on. that is not a barrier to entry or expansion as all players face the same barrier.

Proposed Remedies and Regulatory Failure

The CMA's evidence on AEC and its theory harm from technical barriers and egress fees simply do not justify the cost of any further inquiry into the matter and especially not into potential remedies or the use of DMCAA powers. There is simply no need for, nor benefit to CMA intervention, or the potential "remedies" the CMA lists - only costs.

In the Notice of provisional findings the CMA claims that

> 5. The CMA has new powers under the Digital Markets, Competition and Consumers Act 20243 to establish a new pro-competition regime for digital markets. These powers enable the CMA to designate firms as having 'strategic market status' (SMS) in relation to one or more digital activities; and impose forward-looking requirements and other pro-competition interventions to guide the conduct of firms designated with SMS.

CMA thus proposes the following remedy in relation to AWS and Microsoft in relation to the cloud services or PCIS or CSPNC market

> 6. In light of the commencement of these powers, the Inquiry Group has provisionally decided the following remedies.
>
> (a) Remedy 1: a recommendation to the CMA Board to prioritise commencing an SMS investigation of AWS' digital activities in respect of cloud services, and if an SMS

designation is made to consider imposing appropriate interventions such as those identified in its report;

.

(b) Remedy 2: a recommendation to the CMA Board to prioritise commencing an SMS investigation of Microsoft's digital activities in respect of cloud services, and if an SMS designation is made to consider imposing appropriate interventions such as those identified in its report.

This proposed DMCAA remedy has two elements.

- First the proposed designation of AWS and Microsoft as an SMS.
- The second the interventions identified in the report recommended against AWS and Microsoft if an SMS is made.

I discuss the merits of each in turn

The first step and necessary condition in an SMS designation is that the firms being designated must be found to have substantial and entrenched market power. This condition is not met with regard to AWS and Microsoft in the PDR. The CMA has not proved AWS or Microsoft have entrenched market power and for reasons outlined it seems it cannot. And so, a recommendation that an SMS investigation proceed is not justified and would have no benefit for consumers, but rather be likely to only have an AEC to the detriment of consumers.

Both

- costs of the CMA's proposed interventions or it's "potential "remedies" further (without any offsetting benefit), and
- the degree of AEC and consumer detriment of the remedy,

increase in accordance with the degree to which they involve uncompensated takings of property rights of the firms regulated. The greater the uncompensated loss from proposed remedies or regulatory takings of the property rights of the regulated firms, the greater will be the total regulatory harm and failure.

Thus, on the CMA's proposed interventions or "potential remedies" options mentioned by the CMA to date involving regulatory costs (without any offsetting benefit given AWS and Microsoft have no relevant market power) are as follow.

Lowest cost are "voluntary" ones including

- Voluntary principle-based requirements. and
- Voluntary Rules-based,

Although these have compliance costs and can have larger indirect costs, due to any distortionary consequences for the market and chilling effects on competition, investment and innovation. Indeed, the risk of voluntary arrangements supervised or lead by Government is they in fact can disguise, and even facilitate, and in the extreme legalise cartel type behaviours.

Anything mandatory however involves much greater **uncompensated takings of property rights** of the firms regulated and therefore greater harm or costs. These involve much higher costs therefore with

- Mandatory conduct requirements (CRs) under the DMCAA
- Mandatory Forward-looking pro-competition interventions (PCIs) under the DMCCA
- Mandatory principle-based requirements.
- Mandatory Rules-based
- Any other mandatory interventions

The consumer losses, or costs of error of any of the above mandatory interventions are not only large, but also increase exponentially with increasing use of the intervention, or as the error or divergence from the current competitive market outcomes increases. This applies to all interventions or remedies mentioned by the CMA in its PDR, and for example the specific mandatory remedies of the type previously mentioned by CMA in earlier reports for example including

Information transparency remedies
Restricting the level of egress fees: price control remedies
    Capping egress fees by reference to other fees charged
    Capping egress fees by comparison to costs incurred
Banning egress fees

There is no need for, nor benefit to CMA intervention or the potential "remedies" the CMA lists - only costs. The costs of the CMA proposed interventions or potential "remedies" (without any offsetting benefit) rise in the following ascending order of costs, and degree of AEC and consumer detriment of the remedy. This constitutes regulatory failure These potential remedies also exhibit escalating costs because they give rise to increasing uncompensated takings of property rights and will therefore seriously distort the market, increasingly have chilling effects on investment, and innovation, distortionary effects on market contracts, increasing adverse effects on competition in the market and as a result increasing detriment to consumers, as well as increasing waste of taxpayers money, and increases in wasteful rent seeking by market participants and others. The CMA's evidence and its theory of egress fees as noted simply do not justify the cost of any further inquiry into the matter and especially not into potential remedies.

6 Licensing

In the CMA's PDR Chapter 6 Licensing, the CMA Inquiry Group (CMA) assesses whether Microsoft has partially foreclosed its rivals in cloud services through its software licensing practices. The PDR chapter 6 is divided into 8 major sections

1. Description of the software licensing practices
2. Conceptual framework
3. Microsoft's market power in related software markets
4. The importance of Microsoft software inputs
5. Microsoft's conduct
6. The impact on rivals' competitive offerings from Microsoft's conduct
7. Summary of our assessment and provisional conclusions
8. Provisional conclusion

In what follows I address the CMA's assessments and major conclusions on

1. Market Definition
2. Market power
3. Microsoft's Conduct
4. Evidence of Harm
5. Proposed Remedies and Regulatory Failure

In brief CMA claims that

1) Microsoft has market power in key software products such that customers of cloud infrastructure services that purchase those software products would find it difficult to switch away from them; and
2) Microsoft can leverage its market power in markets for these software products to harm competition in the cloud infrastructure service market if Microsoft's software products are provided at a higher price or lower quality to customers that choose one of Microsoft's rivals in cloud infrastructure services to be their cloud provider, rather than Azure, weakening competition between Microsoft and other cloud providers. And
3) Microsoft's rivals in providing cloud infrastructure services do not have an effective counter strategy;

The CMA further alleges that because Microsoft has market power and behaves in the above fashion

> 1.11 Competition may be harmed such that it leads to foreclosure. Foreclosure can involve rivals being forced to exit from the market, being prevented from entering, or being materially disadvantaged and consequently competing less effectively.

1.12 We are considering two related ways in which a weakening of competition may occur. The first is that the practice of making software licenses more expensive when used with rival cloud infrastructure compared to Microsoft's Azure service may serve to raise rivals' costs of supplying cloud infrastructure services. Microsoft's rivals may have the incentive to pass on a proportion of this cost increase to their customers to optimise their profitability, thereby weakening the competition faced by Azure.

1.13. The second is that Microsoft's licensing practices may have the effect of making a significant proportion of customer demand less contestable to rivals. Over the longer term this may weaken its rivals' ability to acquire sufficient customers to benefit from scale advantages in supplying cloud infrastructure

The CMA has provisionally decided that

- Microsoft has market power in software markets
- Microsoft abuses this power to engage in licensing practices that partially foreclose AWS and Google or adversely impact their competitive positions and
- This gives rise to an AEC in cloud services in the UK and
- exacerbates the AEC that we have provisionally found arising from high market concentration and barriers to entry and expansion in relation to Microsoft's significant unilateral market power.

On remedies the CMA Inquiry Group has provisionally decided the following remedies.

- a recommendation to the CMA Board to prioritise commencing
- an SMS investigation of Microsoft's digital activities in respect of cloud services, and
- if an SMS designation is made to consider imposing appropriate interventions such as those identified in its report.

The recommendations depend critically on the assumptions that

1) Microsoft has market power in key software products that it can leverage into the cloud infrastructure market and have an AEC.
2) Microsoft's rivals have no countervailing strategy

In what follows I will outline why Microsoft seems very unlikely to have market power in software products, that could be abused as the CMA suggests and justify competition law regulation. Microsoft can't therefore leverage any market power into what the CMA calls the cloud infrastructure market or what I refer to as the Computer storage, processing and networking capacity (CSPNC) market. If Microsoft tried it would be punished by in-market rivals

expansion, new entrant market entry, consumer and supplier switching, countervailing supplier negotiating power, and countervailing consumer purchasing power.

To assess CMA's claims and derive the above conclusions in what follows I address the following questions in turn in separate sections

A. Market definition: What is the relevant Market(s)?
B. Market power: Is there market power?
C. Abuse of market Power: is there an abuse of market power?
D. Harm, Remedies and Regulatory Failure; is there evidence of harm to consumers? What remedies are proposed and what are the risks and costs of regulatory failure that need to be factored into any decision?

The CMA presentation of its analysis on the above key questions combines its market definition and market power analysis by five products listed below in the following order

1. Microsoft Windows Server
2. Microsoft SQL Server
3. Microsoft Windows 10/11
4. Microsoft's productivity suites
5. Microsoft Visual Studio

I believe the CMA's approach of thus considering each product separately and addressing market definition and market power together for each is confusing, difficult to read and properly understand, leaving gaps and creating biases.

By considering the first two key substantive issues together at the narrowest product level I believe the CMA creates a framing bias towards a narrow product market definition, and a less competitive market definition, as one does not consider a wider market definition first - which inevitably will be more competitive - and try to refute that hypothesis. Rather the CMA is starting with a narrow and therefore non-competitive market and then trying to test if it is competitive. This is contrary to the presumption or null hypothesis or counterfactual in competition law outlined earlier that the market is competitive, and that this has to be refuted by the CMA presenting evidence to the contrary clearly and to a high standard of proof. I consider thus market definition and market power in separate standalone sections, and consider all the products together at the same time in each section to keep the focus on the issue - not the product.

Further when I look at each for the first two key issues (i.e. market definition and market power) I also consider the products in a different and what seems to me more natural order from the CMA. In each sub section on market definition and market power I consider the products in the following order;

1. Microsoft Windows Server

2. Microsoft Windows 10/11
3. Microsoft SQL Server
4. Microsoft Visual Studio
5. Microsoft's productivity suites

A. Market definition

In what follows I consider

i. The CMA's Geographic market definition and then turn to
ii. The CMA's Product Market Definition

1. Geographic market

CMA View

On Geography the CMA's view is that

> 6.108 Our provisional view is that there is a global geographic market for all the relevant Products

Comment

I agree with the CMA's adoption of a global market definition. The problem is that the CMA fails to adequately recognise the implications of this global geographic dimension for the extent of competition in the market in the rest of its report. The global extent of the market for each of the focal products implies the markets for the products are highly competitive. The customers and rivals of Microsoft compete in a global market. The input market in which they seek software is global. Microsoft faces stiff competition from a raft of large global tech companies (Google, Apple, etc) all highly capable in software markets, able to expand and/or enter in direct competition with Microsoft on all its software products, and well as nimble and smart SME's and start up's globally that are well financed publicly listed and/or private companies with private equity backing at their fingertips.

2. Product Market Definition

The CMA conducts its product market definition analysis, (and market power analysis) by separately focusing on a particular firm's narrow products one by one (Microsoft software products for enterprise or SPE). The CMA thus proceeds by adopting to quote, the "narrowest" product market definitions – one for each focal SPE product. Each market is thus simply defined using the narrow function performed by each focal SPE product.

The CMA thus adopts the position that unless there is compelling evidence to refute the "narrowest" product market focus it will stay with the "narrowest" product market definition. This is a very inappropriate and flawed methodology. It is not based on a reasonable theoretical prior for reasons outlined below, and the approach is unlikely to generate a reasonable conclusion, given inevitable human cognitive inertia or bias - and lack of evidence. The CMA should instead start with a wider more competitive market definition and seek to refute that hypothesis with evidence. Thus in the absence of reasonable evidence otherwise the default is the wider market not the "narrowest" market.

As shown in table 1 below, unsurprisingly, this approach leads the CMA to conclude that there are very narrow and separate markets (shown in the second column in table 1 below) for each of the Microsoft products it examines (shown in the first column in the table below)

Table 1: CMA's Market definition

Microsoft Software Product	**Corresponding CMA Market Definition**
Microsoft Windows Server	Server Operating Systems (OS)
Microsoft Windows 10/11	Desktop Operating Systems (OS)
Microsoft SQL Server	Relational Database Management Systems (RDBMS)
Microsoft Visual Studio	IDEs[58] Specialised in Windows Development
Microsoft's productivity suites	Productivity Suites for Enterprise[59]

A more reasonable starting point for a focal product would have been "software products for enterprise" (SPE). The reasonable theoretical prior that the CMA should have used as a starting point for market definition then should have been the wider global market for the acquisition and supply of "software products for enterprise" (SPE) including all those listed above.

The reason why a global market for SPE is a reasonable prior is that theoretically

- The barriers to expansion and diversification in the market for SPE by the many in-market rival firms creating and distributing software products for enterprise appear very low
- The barriers to entry of new firms to this market for SPE appear very low.

In addition those offering copyright right protected, or proprietary software products for enterprise" (SPE) like Microsoft face very strong competition in the market for SPE from

- *Open source* providers of SPE operating in a "barter exchange mode" in the SPE market and

[58] Integrated Development Environment (IDE). IDEs are a type of software containing a range of tools that software engineers use to build applications, web pages or services.

[59] These are suites of Microsoft products offered as packages to enterprises to enhance productivity. The productivity suites at a minimum cover word processing, presentation and spreadsheet functionalities, however the CMA notes that most suites include number of applications beyond these core functionalities

- *Piracy* - or strong competition from direct and/or intermediary sourced outright or illegal copying and/or use of proprietary SPE without permission of copyright holders in small, medium and large enterprises.

Finally on the demand side the costs of enterprise switching between all the above sources of software products for enterprise (SPE) are very low.

It is *the capability of firms to generate and distribute software* for enterprises that is the key service offering and it can be applied to new products and innovations and updates of existing ones. Theoretically then at the outset all these close substitutes on the supply and demand side for SPE simply have to be included in the same global software products for enterprise (SPE) market. There are many in-market rivals, with low costs of expansion, and low barriers to entry for new entrants and lows costs of customer switching. This global market for SPE is thus highly competitive and no market player in it is likely to have market power – including Microsoft.

As noted in our discussion of the AEC test one should always start with the more competitive market. The CMA however starts its product market definition analysis by focusing on the "narrowest" product definitions for a particular firm (Microsoft software). When it can't then find evidence to refute this "narrowest" hypothesis it sticks with the narrowest market definition possible and bases its market power analysis on that. This is an inappropriate methodology in light of our discussion of the AEC test above and given CMA's legal obligations. It cannot generate a reasonable conclusion and will tend to lead to ultra vires actions. The CMA should instead start with the wider more competitive market definition and seek to refute that hypothesis with evidence. Thus in the absence of reasonable evidence otherwise the default is the wider market not the "narrowest" market.

In what follows I review the CMA's approach to market definition in detail for each Microsoft SPE to verify the forgoing and highlight in further detail the problems with the CMA's "narrowest possible" market definitions.

Windows Operating System

CMA View

The CMA provides the following narrowest focal general product definition for Microsoft's Window's server operating system (MWOS),

> 6.109 For the purposes of this investigation the relevant focal product is server OSs, as we consider this as the narrowest plausible candidate market Windows Server sits within.

The CMA defines server operating system (OS) as follows

> 6.79 Server operating system (OS) software is designed to run a server's hardware and provide a platform for the use of application software. This is similar to how a desktop OS is used to run applications on a personal computer. For example, in a typical

> corporate use case, Microsoft Windows Server (Windows Server) can be installed on a central computer to coordinate and manage employees' access to shared storage, printers, or other devices

This product definition provides the bases for CMA's market definition used for later analysing Microsoft's market power in server OS software. Before proceeding however the CMA considers a possible extension to the market definition.

> 6.109 In the following section, we consider whether the market should be widened to include desktop OSs. We then consider the extent of any market power held by Microsoft in relation to the relevant market.

The CMA then reports on views expressed by providers and customers before reaching the following conclusion or emerging view

> 6.114 Our provisional view is that the relevant product market for Windows Server is the market for server OSs and that it should not be widened to include desktop OSs, meaning Linux/UNIX server OS distributions would be included within the market.

Comment

As noted the CMA's methodology, analysis and conclusions on market definition seem problematic from the outset. The prior "narrowest" market definition is sustained when the evidence relied upon in particular seems very weak to refute a wider more competitive market prior as required by the AEC test. The questions the CMA asked providers and customers are also either not clearly framed, or relevant for the purpose, and/or not consistently asked and/or the answers recorded do not clearly relate to the underlying question posed, and the purpose being served namely market definition. Similarly the survey sample, or those surveyed for questioning, does not seem representative.

As noted the CMA starts by framing its discussion around specific Microsoft products - starting with Microsoft windows Server OS (MWS OS). The core question or issue should then be what other software products are in the same market? At this point the CMA should have at least tested substitution possibilities between MWS OS and other operating systems - including Linus and Unix distributions, Red Hat, IBM OS, HPE, HP-UX, Oracle Solaris and Oracle Linux.

CMA does not however explicitly apply a market definition methodology like the SSNIP test to this task but seems to just assert

> 6.109 For the purposes of this investigation the relevant focal product is server OSs, as we consider this as the narrowest plausible candidate market Windows Server sits within.

The only question or issue the CMA then asks at the outset is

> 6.109 In the following section, we consider whether the market should be widened to include desktop OSs.

The question the CMA focuses on then is whether Server OS's and Desktop OS's are substitutes and in the same market. The answer to this question clearly depends on what purpose, or for what use, or applications? Server OS's and Desktop OS's do not each have a single use case, or offer a single application.

Server OS's and Desktop OS's both offer multiple applications or use cases, and these applications and use cases can overlap, and are substitutes in areas of overlap. This can be tested by whether a relative price change in the price of Server OS, or Desktop OS would lead to a change in behaviour in the use of Server OS, or Desktop OS overall, or for particular purposes or uses over time. Thus for example the question might be whether a 5-10% price increase in either Server OS, or 10/11 would cause substitution to the other product for particular purposes, uses, or applications?

The questions the CMA claims to have asked providers and customers respectively however are:

> 6.110 We asked Microsoft and competitors whether there were certain use cases where a desktop OS could be used as a substitute for a server OS.

> 6.112 We asked customers that use Windows Server on the public cloud to identify any alternatives to Windows Server that they could use for the same purpose.

These however are very different questions. It is not clear they are likely to be understood in the same way by those of whom it was asked. Providers are more likely to have a wider viewpoint on substitution possibilities than a customer. While the sample used for customers is not a representative sample of customers but focuses on "customers that use Windows Server on the public cloud".

It is thus not clear whether the CMA is framing its investigation into market definition and its research questions properly. At the outset it comments that

> 6.79… Server operating system (OS) software is designed to run a server's hardware and provide a platform for the use of application software. This is similar to how a desktop OS is used to run applications on a personal computer.

Thus even the CMA agrees it seems the products are similar. Theoretically they can also clearly be substitutes presumably for certain purposes or uses. Take the uses and purposes cited by CMA as examples of applications or use cases for Microsoft Windows Server:

> For example, in a typical corporate use case, Microsoft Windows Server (Windows Server) can be installed on a central computer to coordinate and manage employees' access to shared storage, printers, or other devices

It is clearly possible for directly wired or wirelessly networked desktop operating systems to allow multiple users to use the same desk top, and its OS, and "*access shared storage, printers and other devices"* through one desk top OS, using multiple other desktops. It is thus possible for distributed and networked desktop OS to perform the same uses as does a server OS, albeit perhaps not the same complete suite of functions, or with the same storage or processing capacity.

The CMA claims however that

> 6.111 Views from providers suggest that the relevant market should not be expanded to include desktop OSs.

But the evidence it cites from providers does not strictly confirm this claim. Instead key providers tend to contradict this conclusion, and clearly indicate that there were substitution possibilities, as the CMA itself notes as follows:

> 6.110 We asked Microsoft and competitors whether there were certain use cases where a desktop OS could be used as a substitute for a server OS.
> (a) Microsoft said this was possible in theory…. Microsoft also said both server OSs and desktop OSs can be used to provide desktop as a service offerings
> (b) AWS and IBM are other providers of server OS's AWS said desktop are gernally not substitutable….
> (c) IBM said degree of substitutability depends on the application and whether the application will sufficiently and effectively run on the desktop OS, and consider the opposite is more common (server OSSs can be used as a desktop OS)

All these responses of providers suggest overlaps. Without further the CMA makes the judgement there are no overlaps. Overlaps are enough to permit substitution possibilities and expansion of substitution possibilities by recoding desktop server programmes (e.g. to allow multiple users to login to a desktop) and upgrade hardware. Simple tasks for providers in the CSPNC market.

The question the CMA asked the *customers* surveyed was unlikely to let this wider kind of exploration of substitution possibilities allowed providers. The CMA only asked customers that use Windows Server on the public cloud "to identify any alternatives to Windows Server that they could use for the same purpose" (Para. 6.112 copied above). In response to such a question the limited sample of customers using the public cloud would seem likely to only think about limited substitution possibilities for example on the cloud, but also at best only about substitution possibilities between what a Window Server OS can do as a package deal across multiple purposes, uses, and applications, as compared to desktop OS.

This highlights the key issue, that Server OS's perform multiple functions, and Desktop OS's perform multiple functions, and sometimes these functions overlap, and when they do the two software products are substitutes. They are also however complements especially to the extent Servers OS actually network Desktop OS. Server OS's however in essence allow the transfer of uses, and applications, or functions from a Desktop OS to a Server OS. This can economize on the total distributed computer storage, processing and network power or capacity (CSPNC) a firm may require. In other words an OS software can offer the sharing of computer storage, processing, and networking capacity, on which applications can be stored and processed or used centrally and privately within a firm for example, or on the cloud rather than on a desktop. Such software is thus part of the computer storage, processing and networking power/capacity (CSPNC) market defined in chapter two earlier

The CMA's conclusions that there are separate markets in Server OS and Desktop OS imply the CMA adopts very narrow product market definition. As a result, the CMA fails to identify key constraints that would prevent the exercise of market power in any of the assumed separate markets. This leads the CMA to later overstate both the extent of market power of firms supplying *OS software*, and the potential for abuse of market power by those firms, through, for example licensing practices. The CMA's narrow product market definition then leads CMA too readily to the unreliable conclusion that firms supplying OS software hold significant market power and ultimately are abusing that power through for example licensing practices.

As we outlined above, the burden of proof is not on market participants to prove the OS software market is competitive or contestable. The burden of proof is on the CMA to prove it is NOT competitive or contestable. The fact that theoretically Server OS and Desktop OS products are substitutes to some degree, and that providers say the Server OS and Desktop OS are substitute products, implying that they are in the same market, is consistent with the OS software market being competitive.

There is a burden of proof on the CMA then to find reasonable evidence that refutes the wider more competitive market hypothesis. The stated beliefs, intentions and preferences of a limited subset of consumers does not provide that evidence. The market definition CMA proposes is inherently less competitive, and therefore the CMA is simply assuming the market is less competitive without refuting the necessary prior competitive market hypothesis with hard evidence on actual behaviour. There is a clear and received methodology for refuting the prior wider more competitive market hypothesis, namely the hypothetical monopolist test (HMT) or better named small but significant and non-transitory increase in price (SSNIP) using data on actual behaviour. The CMA does not apply this test to data on actual behaviour, or does so incorrectly and/or does not discuss this analysis in its market definition section. We address the evidence it does supply in its market power sections in our later section on market power.

The CMA's assumption that excludes from its market definition alternative SPE including OS software - especially Desktop OS, -without any evidence on actual behaviour, does not refute the prior hypothesis that the market is wider and more competitive i.e. that the relevant

market includes including Server OS and Desktop OS and other SPE discussed below.

As I outlined above, the burden of proof is not on market participants to prove the market is competitive or contestable - and includes Server OS and Desktop OS and other SPE. The burden of proof is on the CMA to prove it is NOT competitive or contestable. To simply remove the Desktop OS, from the same market as Server OS for purpose of its analysis in this and later sections is to assume the market is not competitive - without evidence or without refuting the required assumption that the market is competitive, and includes Server OS and Desktop OS or other SPE.

Microsoft Windows 10/11

CMA's view

The CMA puts Microsoft Window 10/11 in the Desktop OS software which is defines as follows:

> 6.87 Desktop OS software is designed to run a personal computer's hardware and provides a platform for the use of application software.

Such software can clearly be generated by any major player I with software capability in the CSPNC market worldwide. The CMA's conclusion or emerging view on desktop OS is as follows

> 6.160 Our provisional view is that the relevant product market for Windows 10/11 is the market for desktop OSs and should not be further widened to include server or mobile OSs.

Comment

The CMA's analysis so far implies that the CMA is taking the view there are three very narrow markets

- One for server OS
- Another for Desktop OS and a
- Third for mobile OSs.

The CMA further implies that within each market "these products are differentiated, which may weaken the extent to which they are substitutes"

This conclusion in relation to separate market definitions for Desktop OS and Mobile OS is flawed for the same reasons outlined above for the conclusion that Sever OS is in a separate market from Desktop OS. In particular evidence CMA cites from providers does not strictly confirm this claim. Instead key providers tend to contradict this conclusion, and clearly indicate that there were substitution possibilities, as the CMA itself notes as follows:

> 6.155 We asked Microsoft whether there were certain use cases where a server or mobile OS could be used as a substitute for a desktop OS. Microsoft said server OSs can be used to provide 'Desktop-as-a-Service' offerings (i.e., virtual desktops). Microsoft also said mobile OSs could be seen as a substitute for desktop OSs, e.g. by a developer of a web browser because web browsing can be done on both types of OSs.
>
> 6.156 IBM said it was possible for a server OSs to be a substitute for a desktop OS and gave the example of Windows Server providing virtual desktops to many users.

The question the CMA asked the customers surveyed was unlikely to allow this wider kind of exploration of substitution possibilities. The CMA only asked customers that use Windows 10/11 on the public cloud "to identify any alternatives to Windows 10/11 that they could use for the same purpose" (Para. 6.157). In response to such a question the limited sample of customers using the public cloud would seem likely to only think about limited substitution possibilities for example on the cloud, but also at best only about substitution possibilities between what a Windows 10/11 can do as a package deal across multiple purposes, uses, and applications, as compared to desktop OS, and Mobile OS.

This highlights the key issue, that Windows 10/11 perform multiple functions, and Server OS's, and Mobile OS's perform multiple functions, and sometimes these functions overlap, and when they do the two software products are substitutes. Developers and suppliers of these products are also potential competitors. The products are also however complements. The ability to transfer uses, and applications, or functions from a Desktop OS, to a Mobile OS and to a Server OS can both greatly enhance consumer value and economize on the total distributed computer storage processing and network power or capacity (CSPNC) a firm may require. In other words the sharing of computer storage, processing, and networking capacity, on which applications can be stored and processed or used centrally and privately within a firm and remotely, or in the field, or on the cloud, rather than on a desktop and vice versa.

The CMA's conclusion that there are separate markets in Server OS and Desktop OS and Mobile OS imply the CMA adopts three very narrow product market definitions. As a result the CMA fails to identify key constraints that would prevent the exercise of market power in any of the assumed separate markets. This leads the CMA to overstate both the extent of market power of firms supplying *OS software*, and the potential for abuse of market power by those firms, through, for example licensing practices. The CMA's narrow product market definition then leads CMA too readily to the unreliable conclusion that firms supplying *OS software* hold significant market power in the market for OS software and ultimately are abusing that power through for example licensing practices.

As we outlined above, the burden of proof is not on market participants to prove the *OS software* market is competitive or contestable. The burden of proof is on the CMA to prove it is NOT competitive or contestable. The fact that providers not only say that the Server OS, Desktop OS and Mobile OS products are substitutes to some degree, implying the Server OS, Desktop OS and Mobile OS are substitute products that are in the same market, is consistent

with the market being competitive. There is a burden of proof on the CMA then to find reasonable evidence that this is not true, that the market definition it proposes, which as noted is inherently less competitive, and therefore simply assumes the market is less competitive without proving it. There is a clear and received methodology for doing this namely the hypothetical monopolist test (HMT) or better-named small but significant and non-transitory increase in price (SSNIP). The CMA does not apply this test to data on actual behavior – it uses proven unreliable stated intentions data at best.

The CMA's assumption that excludes from analysis alternative OS software (including Server OS and Mobile OS), without any evidence on actual behaviour, does not refute the prior hypothesis that the market is competitive i.e. that the relevant market includes including Server OS, Desktop OS and Mobile OS

Microsoft SQL Server

CMA View

The CMA describes its provisional view as follows:

> 6.84 Microsoft SQL Server (SQL Server) is a Relational Database Management System (RDBMS). A RDBMS is a type of Database Management System (DBMS) which manages and stores data in separate tables and defines relationships between those tables.
>
> 6.129 For the purposes of this investigation, we consider that RDBMS is narrowest plausible candidate market which SQL Server sits within.
>
> 6.143 Our provisional view is that alternative DBMS (which are not RDBMS) are not effective demand-side substitutes for RDBMS. This is because most customers would not consider other DBMS solutions (outside RDBMS) as alternatives to their use of Microsoft SQL Server. Therefore, the relevant product market within which SQL Server sits is no wider than RDBMS.

Comment

I note the CMA considers other forms of database management systems may not be effective demand side substitutes for RDBMS.

I note however that providers identified a number of substitution possibilities including other forms of database management systems substitutes for RDBMS. Microsoft listed other forms of DBMS as competitors. Oracle submitted that the database market is highly competitive and its competitors include Microsoft, AWS, IBM, SAP, amongst others. The parties also mentioned that in the past decade new entrants have challenged traditional database players due to the emergence of new database technologies, including NoSQL databases, cloud databases, and virtualised databases. An unnamed DBMS provider further submitted that Microsoft SQL Server

competes with its range of relational and non-relational database services. While another DBMS provider submitted that Microsoft SQL Server competes with its range of relational and non-relational database services

As we outlined above however, the burden of proof is not on market participants to prove the *OS software* market is competitive or contestable. The burden of proof is on the CMA to prove it is NOT competitive or contestable. Providers however say other forms of database management systems are substitutes for RDBMS, and this is consistent with these products being in the same market, and the market being competitive. There is then a burden of proof on the CMA to find reasonable evidence that this is not true. There is a clear and received methodology for doing this namely the hypothetical monopolist test (HMT) – or as noted better-named small but significant and non-transitory increase in price (SSNIP) test. The CMA does not apply this test to data on actual behaviour. The market definition the CMA adopts is inherently less competitive however, and therefore the CMA needs to refute the competitive market hypothesis rather than simply assume the market is less competitive.

Once again then the CMA's view that other forms of database management systems may not be effective demand side substitutes for RDBMS imply the CMA adopts a very narrow product market definitions. The CMA's continued approach to again adopt a narrow product market definition can only once again lead the CMA too readily to the unreliable conclusion that firms supplying relevant *software* hold significant market power and ultimately are abusing that power through for example licensing practices.

The CMA's assumption that excludes from analysis alternative software without any evidence on actual behaviour, does not refute the prior hypothesis that the market is competitive i.e. that the relevant market includes other forms of database management systems that are substitutes for RDBMS.

Microsoft Visual Studio

CMA View

The CMA describes its emerging view as follows:

> 6.92 Microsoft Visual Studio (Visual Studio) is a type of Integrated Development Environment (IDE). IDEs are a type of software containing a range of tools that software engineers use to build applications, web pages or services. IDEs typically include a code editor (a text editor designed for editing source code). They may also have additional features such as intelligent code completion, a compiler/interpreter, build automation tools, debugger, testing or project management tools and AI integration.
>
> 6.93 Visual Studio is no longer supported for Mac OS,1544 and is not supported for Linux. Therefore Mac OS or Linux customers would need to use Visual Studio Code,

or Visual Studio on Windows Desktop or choose an alternative IDE. Visual Studio is also commonly used to develop business applications which run on Windows Server and Windows Desktop.

6.94 We understand that, as for Microsoft's productivity suites, customers either use Visual Studio:

(a) on-premises; or

(b) as part of a VDI solution, for example by installing Visual Studio on a virtual machine, using a cloud infrastructure service such as AWS EC2.

36.188 For the purposes of this investigation we have treated IDEs specialised in Windows development as the narrowest plausible candidate because customer evidence (see below) suggested that one reason customers choose to use Visual Studio is because they want to develop applications to run in the Windows environment. In the following section we consider whether the market should be widened to consider all IDEs. We then consider the extent of any market power held by Microsoft in relation to the relevant market.

The CMA later concludes

6.197 Customers view IDEs not specialised in Windows development as alternatives to Visual Studio. IDEs that are not specialised in Windows development can still be used for Windows development, and customers have mixed views on whether they would consider an IDE tailored for non-Windows development to be a good substitute for Visual Studio. In addition, Microsoft explained that Visual Studio can also be used for building applications to run on non-Windows environments. Therefore, there does not seem to be a good reason to draw a line between IDEs specialised in Windows development, and those that do not.

6.198 Our provisional view is that the relevant product market is the market for IDEs.

Comment

In this case the CMA correctly adopts the view that there has to be "a good reason" to adopt a narrower or less competitive market assumption, and instead assumes that IDEs not specialised in Windows development are alternatives to Visual Studio, and that IDEs not specialised in Windows development can still be used for Windows development, and are in the same market. We review the CMA's discussion of market power later.

Microsoft's productivity suites

CMA View

The CMA describes its provisional view as follows:

> 6.170 Microsoft has various packages of products which provide some productivity functionality. For the purposes of this investigation, we consider solutions only for enterprise consumers.
>
> 6.171 Customers use a variety of different packages under the 'Microsoft 365' label, including Office 365, Microsoft 365 Apps for business and various enterprise Microsoft 365 packages.
>
> 6.172 For the purposes of this investigation, we have treated productivity suites1651 for enterprise as the narrowest product market which the Microsoft productivity products sit within.

In a footnote the CMA comments that

> We consider productivity suites at a minimum cover word processing, presentation and spreadsheet functionalities, however we note that most suites include number of applications beyond these core functionalities[60]

On product market definition the CMA then considers alternatives

> 6.173 … we consider whether the relevant market is wider than productivity suites. Considering product functionality, the next-closest alternative which would perform the functionality of a productivity suite is a 'mix and match' approach considering different applications which, combined, would perform similar functionality to the Microsoft suites of products.

The CMA later concludes

> 6.177 Our provisional view is that the relevant market is no wider than productivity suites for enterprise..

Comment

This again seems like a very narrow market definition. The CMA further makes the claim

> 6.177 … customer responses do not support widening the market to include other productivity applications which cover some functionality of the Microsoft packages

But this does not is not clear (and the CMA does not explicitly address) the extent to which this market definition for example includes Google workspace, components of Google workspace (Google docs) Microsoft Office on premises, and open source productivity suites. These are all options that customers mentioned were substitutes for Microsoft products for example CMA comments that it asked customers for alternatives to Microsoft products they could use for the same purpose and they noted customers listing

[60] See footnote 1651

6.175 a) … Google Workspace as an alternative which they could use for the same purpose as Microsoft 365.
b) …a component of Google Workspace (Google Docs) as an alternative.1657 .. Microsoft Office on- premises (desktop installed apps) as an alternative…. open-source productivity suites as alternatives
c) …. li substitutes for component elements of Microsoft 365 including substitutes for security services and eDiscovery services.
d)… an alternative productivity application (Click Up)

These responses clearly indicate the capability of other software providers competing in the CSPNC market with Microsoft, who more no doubt have the capability generally to challenge, contest or rival Microsoft's position in the wider CSPNC market, putting Microsoft under constant pressure in all the products listed so far

The CMA is further not clear about the nature of the customers it surveyed. More generally of concern with this section is that the CMA does not cite provider views at all. As noted in other sections the customers survey have been cloud users and generated a bias, while providers tend to have a wider view of substitutability. We turn to consider problem with the market definition in more depth in our review of the CMA's market power assessment(s)

3. General Comments on Market Definition

The CMA's approach that begins with the narrowest focus on specific Microsoft products generates an inevitably very narrow product market definition and fails to adequately account for competitive relationships between the products, and other service providers. The CMA's approach also suffers from a binary "yes or no" approach to market definition. Including and excluding products on a "yes or no" basis rather than accepting there is a degree of substitutability. The degree of substitutability can only be tested with data on actual behaviour. It is the marginal consumer that drives competition and the potential for entry and expansion of competitors that matters. More deeply rooted and fundamental problems with the CMA's empirical approach are outlined below. They include first its "narrative approach", and second the data it relies on. In short it does not justify separating the Microsoft products it considers from a wider SaaS market, or the wider still CSPNC market that SaaS is part of, given it is clear there is software being used in the IaaS and PaaS categories. SaaS PaaS and IaaS are just artificial inventions of the industry's popular media, and market definitions based on them are no more that narratives or fictions. The even more and very narrow software markets for Microsoft products suggested by CMA are even worse narratives or fictions.

- *The CMA's Narrative Approach*

The CMA adopts a strictly *narrative approach* to reporting on evidence, and important data is redacted. A "narrative review " approach involves an expert in a particular field like the CMA

writing a narrative summary of evidence.[61] However there are a number of substantial limitations to this process. The first key problem is a substantial risk of bias. No matter how well-intentioned narrative reviewers are it is impossible to fully ameliorate the influence of prior beliefs and theoretical perspectives upon the selection and interpretation of relevant evidence. The biases associated with narrative reviews include:

- A preference bias, which describes the propensity for authors to design an investigation so that their preferred outcome is likely to be found (Wilholt, 2009). For example, authors may omit poor quality studies that counter the authors proposed view, but include studies that support this view (Stanley,2001).
- An availability bias, which refers to the ease with which associations are brought to mind being used as a heuristic to ascertain their likelihood (Shanteau, 1989, Tversky and Kahneman, 1973).
- Cognitive dissonance, referring to the discomfort that is felt when information inconsistent with what we already believe is presented (Festinger, 1957).
- Selective exposure, referring to seeking information congruent with what is already believed and avoiding contrary evidence to avoid cognitive dissonance (Hart et al., 2009, Wason, 1960).
- Confirmation bias, referring to the tendency both seek and misperceive or misremember incongruent information in a manner that supports prior beliefs (Oswald and Grosjean, 2004, Smith et al., 2008, Smith et al., 2007).

The likely introduction of these biases means that narrative reviews cannot be replicated, and their results cannot be independently verified. This lack of independent verification is the second key problem for traditional narrative reviews. The methods by which particular studies are included or excluded and study results analyzed and amalgamated are not described. It is therefore impossible to determine whether studies were excluded because the author did not consider them relevant, because the study presented findings counter to their existing beliefs, or whether the authors were unaware the study existed. The final problem with traditional reviews is a practical one. As the sources of relevant research increases, it can become increasingly difficult for any one expert to remain up to date with the entire research available on any one topic Therefore a reliance on preferred research can compound the issue of prior knowledge.

- *The Nature of the Data Relied on by the CMA*

Second the evidence relied on by the CMA is of a very poor quality. Study quality is driven by the type of evidence characterized in terms of the distance of the unit of measurement from *actual behavior*, which is what ultimately we are interested in. Table 2 below ranks the quality of data relied on from worst at the top, to best at the bottom, or by the distance from actual behavior in a hierarchy of study measures quality - with the best measures as noted in the bottom row in this case

[61] This discussion of “narrative review” and “bias” closely follows the literature review of Watson, S.J. et al (2014)

Table 2 Hierarchy of Evidence or Study Measures

Qualitative research	Explorations of perceptions of or engagement in behaviors without quantitative assessment.
Stated preferences and attitudes	Outcome is at the level of how good or bad, right or wrong, or preferable an action is perceived to be
Intentions to perform behavior	Outcome described participants reports of behavior that they plan to engage in in the future
Willingness to pay (WTP)	Outcome represents the amount of money that a participant states they are willing to pay in order to obtain a good
Stated behavior	Outcome represents a participant's report of behavior that has been engaged in in the past, such as from a survey
Actual Observed behavior	Outcome represents behavior that is either directly observed at the level of the individual, such as in an experiment, or else at the population level, such as from actual sales data

Starting from the worst or most distant from actual behavior, at the top of the hierarchy of measures in Table 2 above then, we have *stated preferences* and attitudes on how good or bad, right or wrong, an action is perceived to be, and *stated intentions* to perform behavior, (e.g. intentions to engage in switching behavior with a 5% SSNIP). Closer to – though still not quite - actual behavior are *willingness to pay* (WTP) measuring the amount of money that people state they are willing to pay to obtain a good, *stated behavior*, which is a participant's report of behavior that has occurred in the past, typically as stated in a survey. The best as noted is data *actual behavior* shown at the bottom of table 2 above. I classify a study as looking at actual observed behavior if it is actual behavior directly observed either at an individual or population level: behavioral experimental data and sales data fit into this category.

Depending on where the mix of available evidence lies in terms of the hierarchy of measures in table 2 above, we can evaluate whether the empirical evidence and associated policy implications are comparatively stronger or weaker.

The CMA's evidence is predominantly on the weak side, in the form of stated preferences (to stay or switch) or intentions (in response to a SSNIP type test question) at the top of the table. Where the CMA uses data on actual observed behavior, it uses sales data. Where the CMA uses sales data however it is to calculate market shares that are unreliable for the purposes they are used for, namely assessing market power, as the CMA calculations of

- Market shares are estimated off the narrowest product market definition built around the narrowest specific key SPE products of Microsoft. These market share measures are therefore unreliable as they don't reflect wider competitive SPE market shares – and in any event,

- Market shares measures even properly measured cannot be used to
    - Refute a competitive market hypothesis, or SPE market definition and
    - Justify the less competitive narrowest market definition, and
    - Prove market power.

  for reasons discussed in my earlier report.

B. Market Power

For reasons outlined below CMA claims Microsoft has significant market power in the "narrowest" software product markets. For reasons outlined above however Microsoft is highly unlikely to have significant market power even if one adopts these narrowest product markets adopted by the CMA. The problem is that the CMA fails to adequately recognise the implications of it's global geographic dimension for the extent of competition in the market. The global extent of the market for each of the focal products implies the markets for the products are highly competitive. The customers and rivals of Microsoft are large and well financed and compete in a global market. The input market in which they seek software is global. Microsoft faces stiff competition from a raft of large global tech companies (Google, Apple, etc) all highly capable in software and with strong client brand awareness, they are each able to expand and/or enter in direct competition with Microsoft and challenge it on all its software products in a global market, starting perhaps in some niche geographic market where Microsoft may be weak perhaps, or across the board, - as well as competition from nimble and smart SME's and start up's globally that are well financed publicly listed, and/or private companies, with private equity backing at their fingertips and that can pop up anywhere with a local and/or specific product advantage.

In the wider product market for software products for enterprise (SPE) that I adopt, and that includes the CMA's five product markets outlined above, Microsoft is definitely unlikely to have significant market power globally. When one considers the five products together it is clear that it is *the capability of firms to generate, distribute and maintain good software* for enterprises that is the key service offering in the SPE market, and this capability can come from anywhere and be applied to new software products and innovations and updates of existing ones.

The SPE market in turn is really a part of the wider global computing storage, processing and networking capability (CSPNC) market. For reasons outlined in my earlier report, the CSPNC market -including so called "cloud" services - is even more competitive. This implies that Microsoft is highly unlikely to have market power in any markets (my SPE or the CSPNC it is part of – or CMA's five software markets, or SaaS, PaaS, or IaaS). Therefore it is not possible for Microsoft to leverage market power in the fictional five software markets identified in by CMA into the CSPNC or so-called public cloud infrastructure services market as claimed by CMA, as Microsoft has no market power in any of them, instead it faces stiff competition from major rival tech companies like Apple, Google, Amazon etc on all fronts - and from small more nimble SME's and start-ups or new entrants on a targeted basis.

1. CMA View

The CMA claims Microsoft has significant market power in key software products such that customers of cloud infrastructure services that purchase those software products would find it difficult to switch away from them. [62] Competition may then be harmed such that it leads to foreclosure, which involve rivals being forced to exit from the market, being prevented from entering, or being materially disadvantaged and consequently competing less effectively, because of the way Microsoft may charge higher prices or offer lower quality for the five software products the CMA identifies, if they are used on a rivals "cloud".

The CMA conclusion that Microsoft's market power in software can be leveraged is based on its analysis of market power in each of the five "narrowest" software product markets it has suggested in turn. As I shall show in each of its proposed product markets the CMA's market power analysis is flawed, there is no market power, and the risk of harm from foreclosure in the cloud services market by Microsoft leveraging market power in its software products therefore disappears.

Server OS Market - Windows Operating System

In the PDR CMA provisionally concludes that:

> 6.126 We have provisionally found that Microsoft has a significant degree of market power in relation to Windows Server because Microsoft appears to have a high share of the server OS market and most customers would be unlikely to switch away from Windows Server in response to a small but significant price increase. The substitutability from Windows Server to other forms or server OS is limited.
>
> 6.127 This view is strengthened by the links between Windows Server and other Microsoft software outlined by customers.
>
> 6.128 Our view would not change, even if we had defined a wider or narrower market. We conducted this assessment on a market for server OS. There was scope for Windows Server to be in its own market because there were some limits to substitution between Windows Server and other server OS products, and we took these into account in our assessment. Microsoft would hold the entire share of a market defined on this basis. If the market had been widened to include desktop OSs, this would not make a difference to our view on market power, as desktop OSs serve a different use case and customers did not view them as substitutes. Customers would be unable or unwilling to switch away from Windows Server regardless of the frame of reference.

[62] Licensing practises Working Paper Page 6 Paragraph 1.10 (a)

In short then the CMA seeks to refute a competitive wider market hypothesis or counterfactual and conclude that Microsoft has market power in the Server OS and desktop OS markets both individually and combined largely based on its analysis of

- Market shares
- Product differentiation
- Evidence from customers on stated preferences or intentions

I will return to review this conclusion below but first review the CMA's treatment of market power in the remaining software markets it has suggested.

In passing however it is worth noting that the CMA claims "Our view would not change, even if we had defined a wider or narrower market" it repeats this claim in its analysis of its claimed separate product markets so I will not repeat this point below but take it as red. In short the CMA can claim to make this judgment, but it did not fully consider a wider market definition in this or other cases, so it does not have a basis for making such judgement(s) - and the CMA's theory, evidence, and analysis on market power in the smaller market (s) is flawed - as we shall see – and cannot be extended to wider markets to refute the hypothesis that there is no market power in the wider market, or that the wider market is well functioning or competitive..

Desktop OS Market - Microsoft Windows 10/11

Again the CMA analysis of the Desktop OS market leads it to the following conclusions:

> 6.168 We have provisionally found that Microsoft has a significant degree of market power in relation to Windows 10/11. This is because Windows 10/11 is differentiated from the next-closest products, has a very large share of the desktop OS market and customers are unwilling or unable to switch away in response to a small but significant price increase. This view is strengthened by the links between Windows 10/11 and other Microsoft software outlined by customers.
>
> 6.169 This view would not be different, even if we had defined a wider or narrower market. We conducted this assessment on a market for desktop OS. There was scope for Windows 10/11 to be in its own market because there were some limits to substitution between Windows 10/11 and other desktop OS products, and we took these into account in our assessment. Microsoft would hold the entire share of a market defined on this basis. If the market had been widened to include server or mobile OSs this would not make a difference to our view on market power, because they serve different use cases and customers did not view them as substitutes (which contrasts to Microsoft which provided some examples of use cases where they could be substitutes). In addition, customer evidence suggests customers would be unable or unwilling to switch away regardless of the frame of reference.

In short yet again then the CMA seeks to refute the more competitive market hypothesis and conclude that Microsoft has market power in the very narrow Server OS and desktop OS and mobile OSs markets both individually and combined largely based on its analysis of

- Market shares
- Product differentiation
- Evidence from customers on stated preferences or intentions

As noted I will return to review this conclusion below, but first review the CMA's treatment of market power in the remaining software markets it has suggested.

RDBMS & DBMS Markets - Microsoft SQL Server

The CMA's analysis of the RDBMS and DBMS markets leads it to the following conclusions:

> 6.151 We have provisionally found that Microsoft has a moderate but significant market share and, although a number of alternatives exist in the market for RDBMS, customers are generally unwilling to switch to alternative products in response to a small but significant price increase.
>
> 6.152 While the evidence is mixed, considering the evidence in the round our provisional view is that Microsoft has a significant degree of market power in relation to SQL Server. This view is strengthened by the links between SQL Server and the other Microsoft software products, outlined by customers ..
>
> 6.153 This view would not be different, even if we had defined a wider or narrower market. We conducted this assessment on a market for RDBMS. If the market had been widened to include alternative DBMS, we would come to the same conclusion with respect to Microsoft's market power because customers did not view these additional alternatives as substitutes for their use of SQL Server. Customer evidence suggests customers are unwilling to switch away from SQL Server regardless of the frame of reference.

In short yet again then, the CMA seeks to refute the more competitive market hypothesis and conclude that Microsoft has market power in the very narrow RDBMS and DBMS markets both individually and combined largely based on its analysis this time of only

- Market shares
- Product differentiation
- Evidence from customers on stated preferences or intentions

I will return to review this conclusion below, but first review the CMA's treatment of market power in the remaining software markets it has suggested.

IDEs Specialised in Windows Development Market - Microsoft Visual Studio

The CMA's analysis of the very narrow Visual Studio and IDE specialized in Windows

Development markets leads it to the following conclusions:

> 6.206 We have found that, while there are a wide variety of alternative IDEs in the market, Visual Studio is differentiated, many customers are unwilling or unable to switch away in response to a small but significant price increase for some use cases, there are various barriers to switching including cost and staff re-training, and Microsoft has a moderate share in the IDE market (and the largest of all providers).
>
> 6.207 We have provisionally found that Microsoft has significant market power in relation to Visual Studio. This view is strengthened by the links between Visual Studio and other Microsoft software outlined by customers.
>
> 6.208 This provisional conclusion would not be different, even if we had defined the market more narrowly. We conducted this assessment on a market for IDEs. There was scope for Visual Studio to be in a market for IDEs for Windows development because this use case created some limits to substitution between Visual Studio and other IDEs, and we took these into account in our assessment. Microsoft would have a higher market share on this basis than we have found for a market for IDEs. In addition, customer evidence suggests customers would be unable or unwilling to switch away regardless of frame of reference

In short yet again then, the CMA seeks to refute the more competitive market hypothesis and conclude that Microsoft has market power in the very narrow Visual Studio and IDE specialized in Windows Development markets both individually and combined largely based on its analysis, this time of only

- Market shares
- Product differentiation
- Evidence from customers on stated preferences or intentions

I will return to review this conclusion below, but first review the CMA's treatment of market power in the remaining software markets it has suggested.

Productivity Suites for Enterprise Market - Microsoft's productivity suites

The CMA's analysis of the very narrow Productivity Suites for Enterprise market leads it to the following conclusions:

> 6.186 We have provisionally found that Microsoft has a significant degree of market power in relation to its productivity suites. This is because there are limited competitive alternatives to the Microsoft packages and customer evidence suggests that customers are unwilling or unable to switch away in response to

a small but significant price increase.

6.187 This conclusion would not be different, even if we had defined a wider or narrower market. We conducted this assessment on a market for productivity suites for enterprise. We considered the competitive constraint exerted by alternatives to individual applications within productivity suites in our assessment. There was scope to consider a narrower market for only Microsoft packages because customer evidence suggests that customers are unwilling or unable to switch away from these. Microsoft would hold the entire share of a market defined on this basis. If the market had been widened to a market for productivity software, this would not make a difference to our view on market power because customers did not view them as substitutes. In addition, customer evidence suggests customers would be unable or unwilling to switch away regardless of frame of reference.

In short then the CMA seeks to refute the more competitive market hypothesis and conclude that Microsoft has market power in the very narrow Productivity Suites for Enterprise markets both individually and combined largely based on its analysis of

- Evidence from customers on stated preferences or intentions

Cumulative effect when considering Microsoft's market power

Finally the CMA discusses the cumulative effect of its analysis of the "narrowest" software markets above, and concludes as follws

Our assessment

6.231 …, we consider that how the Microsoft products are purchased, technical benefits when using Microsoft products with other Microsoft products, and technical limitations in using alternative products with the Microsoft products, may act as sources of market power. This is not accounted for in measures like shares of supply and therefore, considered in isolation, market shares for the individual software products may understate Microsoft's market power. We consider that customer switching may be impacted by these factors, and that our evidence relating to market power with respect to individual products would already capture these additional cumulative effects.

6.232 Most customers highlighted that the way the Microsoft products are sold or purchased influenced their decisions around consumption of the software, and some reported that this might prevent switching to alternatives. All customers said there were technical benefits to using Microsoft products together. Most customers thought there were technical limitations when using one of the Microsoft's software products without

one another.

6.234 In addition to the cumulative effects due to links between the five Microsoft software products we have focussed on, and other products from Microsoft's range (which are already accounted for in the market power assessments set out by product), the evidence presented in this section does not provide a strong basis for any additional cumulative effects arising from EAs - (Note: Enterprise Agreements) - (which is not already accounted for in the individual market power assessments for each product).

Provisional view on cumulative effect of market power

6.235 Our provisional view is that Microsoft has significant market power in relation to each of the relevant software products and any cumulative effects not already accounted for in the individual assessments, would support our view on the individual products.

The CMA is thus claiming that complementarities in consumption - or what one could call economies of scope in consumption" - which are clearly benefits for consumers - may give rise to only greater CMA concern – further CMA investigation, and potential remedies and interventions.

This only highlights again how the more the CMA investigates

- The more it finds features that fundamentally benefit consumers (e.g. economies of scale and scope, product differentiation etc.) and that form part of an efficient competitive strategy and that are pro-competitive, the more it then interprets them as reasons for concern about AEC from a competition law perspective. It alleges without proving AEC from such intrinsic features of markets. It also for some reason assumes that such AEC can be treated separately, rather than seeing the features as inseparable and intrinsic or net competitive features that should not be tampered with without sufficient evidence. The CMA provides no evidence to refute the hypothesis that the market is "on a net basis" competitive so as to justify consideration of intervention, nor any evidence that separation, involving investigation and intervention is possible and/or not so costly as to constitute an AEC itself.
- So the more it finds efficient features or intrinsic features for consumers (e.g. economies of scale and scope, product differentiation etc.) the more reasons the CMA also finds to investigate further; and
- The more reasons the CMA finds to design potential remedies and potentially regulate in a fashion that would
    - Involve uncompensated takings of property rights and have an AEC and only

- Further encourage more lobbying for even more of the same.

This does not look like a virtuous circle.

The CMA's Overall Provisional conclusions on Microsoft's market power in related software markets

The CMA concludes that it has provisionally found that Microsoft has a significant degree of market power in relation to Windows Server, SQL Server, Windows 10/11, Visual Studio and its productivity suites as follows.

> 6.237 This is because at least some of the following factors apply to each of these products:
>
> - customer evidence suggests that customers are unwilling or unable to switch away from the product in response to a 5% price rise;
> - there are limited competitive alternatives;
> - the product is differentiated;
> - there are barriers to customers switching; and
> - Microsoft has a moderate to high share of each of the relevant markets.
>
> 6.238 The evidence set out above shows whether Microsoft has the ability and incentive to foreclose rivals: we have provisionally found that customers are unlikely to switch away from the relevant Microsoft software products, which therefore is consistent with Microsoft having the ability and incentive to foreclose rivals.

2. Comment

In summary then the CMA identifies five broad reasons to justify its conclusion that Microsoft has significant market power.

- customer evidence suggests that customers are unwilling or unable to switch away from the product in response to a 5% price rise;
- there are limited competitive alternatives;
- the product is differentiated;
- there are barriers to customers switching; and
- Microsoft has a moderate to high share of each of the relevant markets.

These boil down to three issue which it consistently used as headings to organise it discussion of each of the five markets

1. Customer Evidence
2. Market shares and

3. Product Differentiation – in only the first two markets.

The other two issues identified in the CMA's list "limited competitive alternatives" and Barriers to customers switching" were largely derived from 1. above customer evidence and/or related to 2. product differentiation, which the CMA listed in its five issues and so can be covered there.

Strangely the CMA does not mention other factors including economies of scale in production and consumption (including network effects) so I will not discuss them here. The analysis of these latter factors are already cover in my discussion of chapter 3 of market power in the CSPNC market or the Public Cloud Infrastructure services market

There are however fundamental theoretical and empirical problems with each of the three reasons identified above relied on by the CMA for its emerging view that Microsoft has market power in related software markets that undermine its conclusions. I therefore address each reason below and the problems and weaknesses in the foundations of the CMA conclusions.

The Consumer Evidence

The consumer evidence relied on by the CMA in each market is of a very poor quality. The CMA thus does not provide strong evidence to refute the conclusion the markets are competitive. In particular as discussed earlier

a. The CMA uses a "narrative review "approach to its evidence which has been shown to introduce inherent narrative bias.
b. The CMA also does not provide any evidence of actual observed consumer (or supplier) behaviour that can be used to either define the relevant markets or refute the hypothesis that the markets are workably competitive.

Table 4 below again identifies the ranking of evidence quality presented earlier, but this time the order is reversed, with the best quality top ranked at the top - namely observed actual consumer behavior. At best the CMA presents data on consumer stated preferences and intentions, which are second and third to last in rank of the evidence quality rankings at the bottom of the table. The survey sample the CMA uses is further unclear, but seems highly unrepresentative, if not biased to current users of so called cloud infrastructure services, and infra-marginal customers that have less impact on competitive conditions. It is not clear if the CMA has released the underlying data either or whether it can by OIA, so its conclusions cannot be easily verified. A lot of relevant information is also redacted is report.

Table 4 Evidence quality Ranking

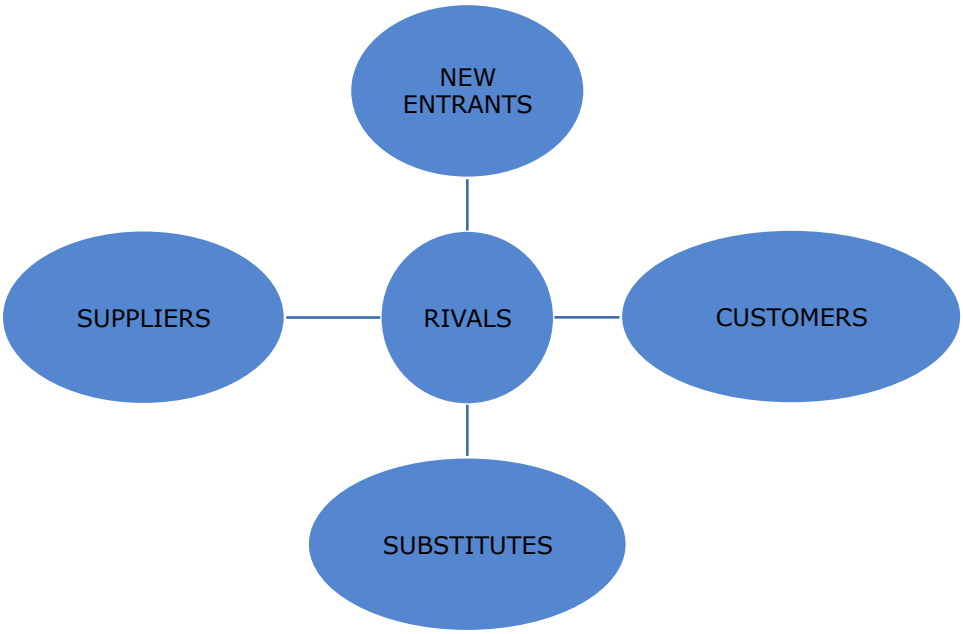
Observed actual behavior	Outcome represents behavior that is either directly observed at the level of the individual, such as in an experiment, or else at the population level, such as from actual sales data
Stated behavior	Outcome represents a participant's report of behavior

	that has been engaged in in the past, such as from a survey
Willingness to pay (WTP)	Outcome represents the amount of money that a participant states they are willing to pay in order to obtain a good
Intentions to perform behavior	Outcome described participants reports of behavior that they plan to engage in in the future
Stated preferences and attitudes	Outcome is at the level of how good or bad, right or wrong, or preferable an action is perceived to be
Qualitative research	Explorations of perceptions of or engagement in behaviors without quantitative assessment.

Market shares

There are five competitive conditions or factors that drive the state of competition in any market and therefore market power and competition risks that need to be proven as substantial listed earlier, these can be summarised using the diagram below as follows.

- First "in market" rivalry as shown in the middle circle of the diagram;
- Second substitution possibilities for consumers, and suppliers shown on the bottom;
- Third barriers to entry facing new entrants, shown at the top;
- Fourth customer, or buyer countervailing market power shown to the right; and
- Fifth supplier countervailing market power shown on the left.



On software products for enterprises (SPE) "in market" rivalry shown in the middle of the above diagram is often proxied traditionally by market shares analysis. But in theory market shares tells one nothing about market power. Market shares at best can only be used as a first step for screening if markets may require further assessment. The reason is that one firm may be dominant simply because it is the most efficient,[63] but that firm is nevertheless constrained by the other four competitive conditions identified in the diagram above.[64]

In addition given our discussion on market definition above, until relevant markets are better defined, it is in fact impossible to calculate markets shares. The key point though is that market shares do not in any event constitute reasonable grounds to conclude the market is not competitive, and continue with the market investigation, One has to look at the other competitive conditions especially barriers to entry that determine market power and the scope for its abuse and refute the null hypothesis that the market is competitive.

There is clearly intense in market rivalry and low barriers to entry and expansion in software involving major tech companies Microsoft, Google and Apple and others, as well as *open source products* including Linus and Unix distributions. Other named players then include Red Hat, IBM OS, HPE, HP-UX, Oracle Solaris and Oracle Linux. If one adds to this *piracy* of software then firms face strong competition from unauthorised copies of the own and competitor's software.

There is also clearly intense within market rivalry in computer storage processing and networking capacity (CSPNC) or what the CMA focuses on cloud public infrastructure services. Substantial computer storage, processing, and networking capacity at scale is readily and cheaply available and deployable at declining cost and increasing quality over time from around the world. On current market players already today, there are at least ten owners and providers of computer storage, processing and networking capacity (CSPNC) worldwide besides Amazon Web Services, Microsoft Azure, and Google Cloud Platform who are the focus of the CMA. These include Alicloud, Baidu, Bytedance, Huawei, IBM Cloud, Oracle Cloud and Tencent. There are also regional market players, like OVHcloud and Scaleway, and newer entrants, such as Nvidia and CoreWeave. Notably, CoreWeave was founded in 2017 to address the need for GPU computing, especially for generative AI technologies. Other global and European Independent Service Providers (ISP) or players could readily expand, or emerge to compete on CSPNC in Europe.

[63] This may be due to economies of scale in production or consumption. These may lead to one firm dominating a market or typically three or four firms if there is product differentiation and market segmentation. There is heterogeneity in the products and services firms may offer, and in consumers demand. To the extent there is a corresponding heterogeneity in consumers demand then there can be "matching" and multiple firms can succeed and match with different consumers.

[64] Standard market share analysis may need to be adapted slightly for two sided or multi sided platforms Lougher and Kalmanowicz (2016), *supra* note 4, at 97

Microsoft does not have significant market power in either the so-called cloud services or the software markets discussed by the CMA that it could abuse.

Product Differentiation

The CMA further has provisionally found Microsoft has a significant degree of market power in a number of related software products (para 6.236) because of product differentiation or where "the product is differentiated" (para 6.237)

As we shall discuss in this section this claim that product differentiation is a feature that can be a source of market power in software products is without theoretical or empirical foundation. There are two main reasons why product differentiation is pro-competitive and not a source of market power relevant to competition law investigations, despite the CMAs claims.

- The first is the nature of competition in the licensing of copyright works like software.
- The second is the extent of diverse consumer or customer needs or preferences.

The second point is easily understood. The first point necessitates considerably more elaboration perhaps.

The underlying property right being contracted over in software markets is copyright. Software licensing involves copyright licensing. Copyright is a type of intellectual property right that is designed to protect the expression of an idea (but not the idea itself) and the rights of the original creator or copyright holder in the continued use and expression of those ideas. The current UK law dealing with copyright is the Copyrights, Designs & Patents Act 1988 (the '1988 Act'). Copyright law grants the creator of software the right to prevent anyone from copying their software without their permission as the copyright owner or holder. These permissions are given in contracts. These contracts – commonly known as licenses and in this case 'software licences' - grant permission - a licence - to use someone else's property, in this case, their copyright work but only on agreed terms – as we shall see determined in a competitive market.

As we shall see copyright, and the form of competition it involves, namely *product differentiation* (expression), is pro-competitive. Copyright, it's licensing and its inevitable product differentiation in expression, is not a source of market power. The reason why copyright, and the product differentiation it engenders are fundamentally pro-competitive is that it minimises transaction costs. Applying the Coase theorem[65] to copyright law, in a zero transaction costs world it does not matter if the right to copy is allocated to creators (that is copyright), or to copiers (so-called copy-privilege). Irrespective of the allocation of the right to copy in a zero transaction cost world an efficient outcome is achievable through negotiation between creators and copiers, the market will work out the efficient result, the law does not matter for efficiency, contracting will provide the welfare maximising solution, no matter how

[65] See Coase (1960)

rights are initially allocated.

The economic rationale for copyright, versus copy-privilege, derives from the differences in total transaction costs under each rule. In this regard it is generally accepted that compared to copy-privilege, copyright saves on transaction costs by allocating the entitlement to creators (who are few) rather than potential users (who are many). This is a familiar aspect of many other workable exchange systems (Holderness, C. G. (1985)). By allocating the entitlement to creators (who are few) copyright is likely to promote efficiency over time as it saves on the transactions costs creators face writing contracts ex-ante, and monitoring and enforcing contracts to limit free riding on created works ex-post with many potential and often unknown users. (Landes and Posner, 1989, Gordon, 1992a, 1992b, 1992c, Liebowitz and Watt (2006)).

This is why the CMA should avoid uncompensated takings of copyrighted software – included the right to set price and other contract terms. Copyright not only minimizes search costs, and adverse selection and moral hazard problems with contracting in advance of creation, it also allocates the initial control and risk of failure of the creative process to the party best able to minimize the costs and risk of failure, the creator. Copyright is therefore likely to maximize the expected social value of the creative process. Copyright by providing a greater incentive to invest in creation is also likely to enhance creative output over time. Copyright also enhances the incentive of creators to distribute their works, and therefore increases access, and the size of the market, by reducing risk of free riding, or copying without payment.

Attenuation of the exclusive rights associated with copyright (including the right to use, the right to income and the right to transfer all rights in part or whole) through regulation, (involving varying degrees of copy-privilege) will raise transaction costs, both ex-ante, where creators have to negotiate contracts with all potential copiers prior to distributing to protect their rights, but also ex-post where creators would have to monitor and enforce contracts to limit free riding on their works. This high private cost of negotiating contracts ex ante, and monitoring and enforcing contracts ex post under copy-privilege expands the opportunities for copiers to 'free ride' on investments in creativity made by others. It therefore reduces the incentive to invest in creation in the first place and leads to lower output over time. Higher transaction costs under copy privilege also reduces or undermines the incentive to publish, distribute or share creative goods due to the greater risk of free riding, or copying without payment. This in turn is likely to limit the extent of the market, as a creative good tends to be an experience good, in that it is hard to judge the quality without use. Reduced market returns under copy-privilege, due to transactions costs thus reduce the incentive to invest in creation in the first place and incentives to publish, and market goods following creation.

This transaction cost rationale for copyright applies to all creativity intensive goods. The two economically important and common elements of such creative goods are:

a. first they involve creativity or creation costs (Harold Demsetz 2009); and
b. second they can be easily copied, and therefore appropriated.

The first feature is not present in standard economic theory, as all goods are presumed to already exist in standard economic models. As Demsetz (2009) notes "standard economic theory, does not allow for two classes of goods, newly created and already existing. All goods are presumed to already exist in these models" (p.9)... "It deals only with production of an existing, known good. This denies opportunities to engage in the sort of free-riding that is involved in the copyright debate, which is based on the ability of a copier to avoid the cost of creating the new work." (p. 8). It is the second feature, or the ease of copying and appropriation with creative goods that means competitors can avoid the creation costs incurred by creators, and "free ride". If copying is then extensive enough, competition will force the price of copies down to the copier's marginal cost. So long as copying is less costly than creating, the resulting market price will be less than the price required to recoup the fixed costs of creation (including opportunity and risk-bearing costs). The risk of appropriation then weakens the incentive to publish, distribute, and collaborate, and in turn the incentive to invest in creation in the first place. The free ride then becomes a cheap ride, as in the long run society (including the free rider) is worse off. Thus recent empirical research that exploits exogenous variation in the adoption of copyright laws has shown significant effects on creative output (Giorcelli, M., & Moser, P. 2014).

The foregoing analysis suggests that due to transaction costs, leading to lack of appropriability, the underlying efficiency problem being addressed by copyright is an inter-temporal trade off. There is basically a potential trade off between present and future consumption – and a conflict between the interests of present and future consumers – as future consumers face the greatest contracting costs. This might lead one to conclude that copyright protection should be broad in its scope (including all forms of original expression), long in its duration (in perpetuity) and enforced strictly enough to cost-effectively deter present day copying.

A key point worth emphasising however is that *copyright does not create any market power,* and is not a source of market power in Microsoft's licensing practises.[66] On the contrary copyright and copyright licensing practices, in particular product differentiation, use restrictions and price differentiation, are inevitably pro-competitive and of benefit to consumers. The reason why, and the key point often misunderstood is that copyright only exists over the expression of an idea, not the underlying idea itself. In the case of software the requirement for a copyright work to be considered a form of expression means that only the codes created and recorded are capable of being protected by copyright – the ideas and methodology which lead to the code are not (i.e. the code is the expression, whereas the original idea is non-recordable).

[66] Arnold Plant (Plant 1937) was one of the first economists to specifically elaborate this view that copyright created what he called a "copyright monopoly". Ronald Coase however, who was a student of Plant, noted about Plant's treatment of copyright that *"Today his discussion seems some what incomplete"*. In particular Plant appears to confuse property rights with monopoly rights (Easterbrook F. 1990)) and failed to ground his analysis in a rigorous treatment of transaction costs and comparative institutional analysis. Thus Plant simply assumed a monopoly pricing problem that needed to be regulated, rather than deriving it from a close investigation of the law, and the transaction costs problems affecting not only markets, but also legislative and judicial solutions.

So in addition to competition from copies of their own work, a copyright holder faces competition from other expressions of the same idea. This makes product differentiation that basic underlying form of competition in software markets. As Kitch (2000) emphasizes, copyright offers relatively thin protection, that allows others to create works, "with the same functional characteristics, as evidenced, for example, by the numerous dictionaries available, by the many television shows, novels, and movies with similar themes and characteristics, or by the many competing software programs." (Kitch 2000 at p. 1730) As Klein, Lerner and Murphy (2002) note: "in contrast to patents, a copyright does not grant exclusive rights to an idea, but merely to the specific expression of an idea. Hence, in spite of the fact that the price of copyrighted works is greater than marginal cost, a copyright generally does not create monopoly power". Without the grant of copyright there is a clear danger that far too little creation will exist, so the 'deadweight loss' from equating marginal cost to a downwards-sloping marginal revenue is productive.[67]

Indeed Yoo (2004) has argued that strengthening copyright facilitates entry and competition in an approach to copyright law based on the economics of product differentiation suggesting that

> "The differentiated products approach further suggests that the tension between access and incentives, commonly regarded as the central problem of copyright policy, may not be as intractable as generally believed. Because facilitating entry by substitute works typically involves strengthening certain aspects of copyright protection, promoting access in this manner can have the added benefit of simultaneously promoting the incentive side of the trade-off as well. In this manner, the differentiated products approach also contradicts the conventional wisdom by demonstrating how strengthening certain aspects of copyright protection can actually cause economic welfare to increase. " (Yoo 2004 at p.221-222)

Professor Christopher Yoo suggests that strengthening critical aspects of copyright benefits *both* creators *and* consumers because it generates product differentiation, promotes competition, and nurtures incentives to create:

> The "idea-expression dichotomy" limits copyright protection to the form of expression without offering any protection for the underlying ideas expressed in the work. This basic principle effectively guarantees that any competitor willing to undertake the same fixed-cost investment as the original author remains free to create alternative works with the same functional characteristics as any existing work. … [T]he differentiated products approach to copyright largely renders moot the objection that strengthening copyright protection and facilitating price discrimination raise distributional concerns. (Yoo 2004 at p.250).

[67] To use the terminology of Liebowitz and Margolis (2005)." (Liebowitz and Watt 2006 p517)

In short, by incentivizing creators to enter the market and produce products with the same functional characteristics as the market leaders, copyright increases competition and limits the capacity of any copyright owner to engage in excessive rent-seeking. As Professor Yoo concludes, the fact that copyright promotes product differentiation ensures that wide scale access to copyrighted works may be promoted by the "strengthening of copyright protection":

> [T]hese insights falsify the claim that simultaneous promotion of access and incentives is impossible and that copyright necessarily devolves into a tradeoff between the two. The supposed tension between access and incentives turns out to be nothing more than an artifact of the traditional approach's reliance on monopoly and oligopoly models that fail to account for entry. The differentiated products approach reveals that encouraging entry can promote both types of efficiency simultaneously. (Yoo 2004 at p.251).

Thus contrary to the CMA's analysis, product differentiation in software markets is pro-competitive and *a key feature of the nature of competition* in such markets. It is not a feature that causes adverse effects on competition. A differentiated products approach thus supports keeping all copyright regulatory interventions in the rights of copyright holders as limited as possible. In addition the need for regulations that attenuate copyright, and interfere in copyright licensing ought to narrow further as the internet and digital technology causes transaction costs to decrease. In any event even if one assumed that copyright created a monopoly (which it doesn't) the likely deadweight costs measured by the so called Harberger triangle are likely to be small, hardly justifying the regulation of licensing practises. Indeed empirical estimates by Harberger of economy wide deadweight costs from monopolies (Harberger, 1954 p.82) and more recent ones suggest more generally that the problem of monopolies and market structures where firms have market power is not significant. Moreover any regulatory or statutory process for making "intelligent estimates" of optimal copyright protection risk on-going "tinkering" that itself is subject to significant transaction costs, rent seeking and a source of uncertainty and efficiency losses.

Like any property right the key rights of copyright covered in software licensing contracts can be summarised as the right to use, the right to income and the right to transfer. The CMA's investigation and proposed potential regulation of licensing terms or practices covering pricing and non pricing terms would interfere in all three rights. This would reduce the incentive to invest innovate and distribute copyright thereby hurting consumers in the future and ultimately harm consumers.

General Comment

For reasons outlined earlier I adopt a wider market definition than the CMA "narrowest" market definitions for assessing Microsoft market power. I adopt the wider global market for the acquisition and supply of "software products for enterprise" (SPE) There are strong theoretical reasons to adopt this wider more competitive market and insufficient evidence to

refute this hypothesis. The reason why a global market for SPE is competitive is that theoretically

- The barriers to expansion and diversification in the market for SPE by the many in-market rival firms creating and distributing software products for enterprise (SPE) appear very low
- The barriers to entry of new firms to this market for SPE appear very low.

In addition those offering copyright protected or proprietary "software products for enterprise" (SPE) like Microsoft face very strong competition in the market for SPE from

- *Open source* providers of SPE operating in a "barter exchange mode" in the SPE market and
- *Piracy* - or strong competition from direct and/or intermediary sourced outright or illegal copying and/or use of proprietary SPE without permission of copyright holders in small, medium and large enterprises.

Finally on the demand side the costs of enterprise switching between al the above sources of software products for enterprise (SPE) are very low.

Theoretically then at the outset all these close substitutes on the supply and demand side for SPE simply have to be included in the same global software products for enterprise (SPE) market. There are many in-market rivals, with low costs of expansion, and low barriers to entry of new entrants and lows costs of customer switching. This global market for SPE is thus highly competitive and no market player in it is therefore likely to have market power – including Microsoft.

C. Abuse of Market Power

The CMA alleges that Microsoft has engage in conduct that is an abuse of market power,and has an adverse effect on competition that harm consumers. This is impossible however as the CMA has not proven that Microsoft has market power. It cannot engage in conduct that is an abuse of market power or that has an AEC and harms consumers if it has not market power. Microsoft does not have market power there is no evidence to prove otherwise, and the weight of evidence is consistent with a competitive market

The PDR however then fails to recognise the conduct it is concluded are an abuse of power or has an AEC detrimental to consumers are legitimate and efficient market practices that have normal commercial rationales and pro-competitive effects, that benefit consumers, rather than being anti-competitive or an abuse of market power or features that have an adverse effect on competition that is detrimental to consumers.

The key reason to believe the practices have legitimate efficiency and pro-competitive effects that benefit consumers is that Microsoft has no market power and therefore there is no scope for Microsoft to abuse market power as alleged by the CMA given the markets are competitive.

The conduct CMA focuses on is Microsoft's pricing and other licensing terms that it consider an abuse of market power identified I the CMA's summary assessment and conclusions as follows

> 6.533 (a) Microsoft currently sets a high input price for AWS and Google to pay in order to host Windows Server and SQL Server. This price has increased substantially since 2018. The input cost for AWS and Google is higher than the customer-facing price that Microsoft charges its own customers to be able to use Windows Server on Azure, provided the customer has pre- existing licences for the product (and qualifies for AHB). For SQL Server, the input cost for AWS and Google is higher than Microsoft's PAYG customer- facing price.

This outcome is consistent with a competitive market. In a competitive market Microsoft would only charge its competitors its direct incremental cost plus opportunity cost for supplying its software for them to host or to resell its products. The opportunity cost would include the profit Microsoft would have made if it sold the product direct. In a competitive market like the one Microsoft is in, the direct cost plus opportunity cost charged competitors may be higher than the price of Microsoft direct supply to its customer, because Microsoft has a lower direct cost plus opportunity cost with direct supply to customers compared to reselling. Thus on pricing the report does not adequately justify the pricing comparisons are apples-to-apples comparisons of identical products offered at different prices in different contexts that demonstrate abuses of market power. The report does not appear to consider 2-sided market pricing effects that might plausibly explain the differential pricing that is purportedly observed

> 6.434 We have also found that for Windows Desktop, Microsoft 365, Office and Visual Studio, the licensing practices mean that for customers with existing licences, they cannot bring these to Listed Provider's public cloud (except specific Microsoft 365 licences to Amazon Workspaces) and for customers without existing licences that they are ["], nor can they purchase Windows Desktop and Microsoft 365 on either AWS or GCP.
>
> 6.435 In addition, potential workarounds for cloud providers wishing to offer Microsoft software for access via VDI are more costly compared to accessing them via VDI on Azure, and some routes are going to be closed in the future due to licensing changes.
>
> 6.436 We have provisionally found that Microsoft's conduct is consistent with actions taken as a result of an incentive to partially foreclose rivals.
>
> 6.437 We also have provisionally found that the magnitude of the differences between customer-facing prices on Azure and SPLA input costs, and Microsoft's conduct in relation to other price and non-price differences, is significant in the context

of customer spend and their available options, and so may have a material effect on competition.

Microsoft does not have market power there is no evidence to prove otherwise, and the weight of evidence is consistent with a competitive market. This means is likely to have a legitimate business or efficiency rationale that does not harm consumers the above for at least three reasons:

1. Contracting in its entirety: If Microsoft raised its prices on its software products above market prices by 5-10%, or lowered the quality of its software services below market standard for those customers that choose to not use Microsoft's cloud services, it would have to offer compensating changes to terms elsewhere in its contracts, either in the software licensing contract, or cloud computing service contract to offset these higher charges or lower quality for consumers. To the extent it does not do this Microsoft would lose customers to alternative software and cloud providers - foregoing profits on its software and cloud business. The CMA does not examine this possibility in full
2. Recoupment: Further if Microsoft did attempt a costly strategy on excess fees and lower quality, to try and lock in its customers, then it would not be able to recoup the costs of the inducements or compensating terms required later. Its customers would simply take the benefit of the inducements and with the assistance of Microsoft's rival exit their relationship with Microsoft or refuse to pay. The CMA does not examine this possibility in full
3. Contract enforcement: The excess prices and lower quality terms for those customers that choose to not use Microsoft's cloud services would also not be enforceable if they were unreasonable restraints of trade. The CMA does not examine this possibility in full

Given the market is competitive price differences and quality variations are more likely to be efficient or designed to recover and or minimise Microsoft's direct and opportunity costs from its competitors, and/or reflect consumers willingness to pay for additional value in the overall contract or licensing agreement. The are more likely to be procompetitive and benefit consumers.

D. Evidence of Harm & Remedies and Regulatory Failure

Evidence of Harm

There is no evidence of harm from Microsoft's conduct on the contrary :

- If Microsoft's software products are provided at a higher price or lower quality to customers that choose one of Microsoft's rivals in cloud infrastructure services to be their cloud provider, rather than Azure, then any such price differentials (if they exist) is likely to simply reflect the difference in direct and opportunity costs facing Microsoft. This direct cost differential due to such arrangement may for example be due to required changes in level of support, or security. The opportunity cost differential may be due to the economies of scale, scope, network and synergy benefits of combining Microsoft software products with Azure cloud infrastructure services compared to rivals.

- Similarly if Microsoft's software products are provided at a lower quality to customers that choose one of Microsoft's rivals cloud infrastructure services to be their cloud provider, rather than Azure. Again this is likely to be due to changes in level of service required given the price paid by customers for Microsoft support, or security under the new arrangement, or if there are diseconomies with reduced scale, scope, network and synergy effects, when Microsoft software products are combined with rival's cloud infrastructure services, rather than Azure.

Proposed Remedies and Regulatory Failure

The CMA's evidence on AEC and its theory harm from licensing practices simply do not justify the cost of any further inquiry into the matter and especially not into potential remedies or the use of DMCAA powers. There is simply no need for, nor benefit to CMA intervention, or the potential "remedies" the CMA lists - only costs.

In the Notice of provisional findings the CMA notes that

> 5. The CMA has new powers under the Digital Markets, Competition and Consumers Act 20243 to establish a new pro-competition regime for digital markets. These powers enable the CMA to designate firms as having 'strategic market status' (SMS) in relation to one or more digital activities; and impose forward-looking requirements and other pro-competition interventions to guide the conduct of firms designated with SMS.

CMA thus proposes the following remedy in relation to Microsoft

> 6. In light of the commencement of these powers, the Inquiry Group has provisionally decided the following remedies.
>
> (b) Remedy 2: a recommendation to the CMA Board to prioritise commencing an SMS investigation of Microsoft's digital activities in respect of cloud services, and if an SMS designation is made to consider imposing appropriate interventions such as those identified in its report.

This proposed DMCAA remedy has two elements.

- First the proposed designation of AWS and Microsoft as an SMS.

- The second the interventions identified in the report recommended against AWS and Microsoft if an SMS is made.

I discuss the merits of each in turn

The first step and necessary condition in an SMS designation is that the firms being designated must be found to have substantial and entrenched market power. This condition is not met with regard to AWS and Microsoft in the PDR. The CMA has not proved AWS or Microsoft have entrenched market power and for reasons outlined it seems it cannot. And so, a recommendation that an SMS investigation proceed is not justified and would have no benefit for consumers, but rather be likely to only have an AEC to the detriment of consumers.

Both

- costs of the CMA's proposed interventions or it's "potential "remedies" further (without any offsetting benefit), and
- the degree of AEC and consumer detriment of the remedy,

increase in accordance with the degree to which they involve uncompensated takings of property rights of the firms regulated. The greater the uncompensated loss from proposed remedies or regulatory takings of the property rights of the regulated firms, the greater will be the total regulatory harm and failure.

Thus, on the CMA's proposed interventions or "potential remedies" options mentioned by the CMA to date involving regulatory costs (without any offsetting benefit given AWS and Microsoft have no relevant market power) are as follow.

Lowest cost are "voluntary" ones including

- Voluntary principle-based requirements. and
- Voluntary Rules-based,

Although these have compliance costs and can have larger indirect costs, due to any distortionary consequences for the market and chilling effects on competition, investment and innovation. Indeed, the risk of voluntary arrangements supervised or lead by Government is they in fact can disguise, and even facilitate, and in the extreme legalise cartel type behaviours.

Anything mandatory however involves much greater uncompensated takings of property rights of the firms regulated and therefore greater harm or costs. These involve much higher costs therefore with

- Mandatory conduct requirements (CRs) under the DMCAA
- Mandatory Forward-looking pro-competition interventions (PCIs) under the DMCCA
- Mandatory principle-based requirements.

- Mandatory Rules-based

The consumer losses, or costs of error of any of the above mandatory interventions are not only large, but also increase exponentially with increasing use of the intervention, or as the error or divergence from the current competitive market outcomes increases. This applies to all interventions or remedies mentioned by the CMA in its PDR, and for example the specific mandatory remedies of the type previously mentioned by CMA in earlier reports for example including:

- Increasing price transparency in relation to the use of Microsoft software products on Azure and third party cloud infrastructure
- Allowing customers to transfer previously purchased Microsoft software products to the cloud infrastructure of their choice without additional cost
- Parity of Microsoft software products and product functionality for use on Azure and third party cloud infrastructure
- Non-discriminatory pricing of Microsoft software products, regardless of which cloud infrastructure they are hosted on

Conclusion

For reasons I have outlined in detail above the weight of theory and evidence on the CMA's hypothesis in relation to Microsoft's *Licensing practices in the market for software products*my conclusion is that (as with egress fees CSD and technical barriers in the CSPNC market)

1) Microsoft does not have market power and its licensing practices (for example if a higher price or lower quality is offered to customers that choose one of Microsoft's rivals to be their cloud provider in cloud infrastructure services, rather than Azure) will have legitimate business, and efficiency rationales, and pro-competitive effects that benefit consumers, in that the terms that better ensure prices approximate suppliers direct and opportunity costs or efficient costs in the software market and Cloud services market
2) Microsoft's licensing practices cannot have an adverse effect on competition (AEC) or detrimentally effect consumers for reasons outlined earlier in particular there are no barriers to entry and expansion, and any attempt to have an AEC would lead to punishing competitive responses from other incumbent firms and new entrants, and both customer and supplier switching and countervailing responses, with the parties to the agreements themselves reneging on any anticompetitive part to the deals or failing. Instead as noted in fact the licensing agreements and the terms are more likely to substantially enhance competition, and have legitimate business and efficiency rationales and effects as outlined above.

These conclusions appear obvious from the outset, and so a more fundamental point I make is that it is very premature for the CMA to be raising these specific "applied" or case related

questions and conducting a public inquiry into competitive conditions and practices in software markets. Indeed the CMA decisions to continue its investigation and then recommend a DMCAA proceeding seem unreasonable, seriously unfounded and even ultra vires or beyond its jurisdiction. The CMA was not set up to investigate clearly competitive markets. The CMA's inquiries and recommendation are more likely to lead to a lessening of competition in relevant UK markets than the conduct market feature and agreements being investigated. The CMA has failed to to stand back and correctly address a number of fundamental or primary prior questions, and assess the evidence justifying the market investigation in the first place. In short the CMA's PDR begs a large number of prior and more primary questions that the CMA has not provided a satisfactory answer on and need to be answered to justify any further action.

Appendix I Statutory Background

The Enterprise and Regulatory Reform Act 2013 (ERRA) further clearly states.

> "The CMA must seek to promote competition, both within and outside the United Kingdom, for the benefit of consumers." [68]

ERRA is thus clear that the mandate and sole objective[69] of the CMA, in competition law and policy and the Digital Markets and Consumer Act is to maximise consumer benefits, or welfare

The Enterprise Act (2002) ("The Act") s 134 makes clear the CMA when considering a MIR must

> "decide whether any feature, or combination of features, of each relevant market prevents, restricts or distorts competition in connection with the supply or acquisition of any goods or services in the United Kingdom or a part of the United Kingdom." [70]

The decision is made by a group of independent members constituted from its panel, on behalf of the CMA. If the group decides that there is such a prevention, restriction or distortion of competition, it will have found an 'adverse effect on competition' (AEC) as defined in section 134(2) of the Act which states

> "for the purposes of this Part "there is an adverse effect on competition if any feature, or combination of features, of a relevant market prevents, restricts or distorts competition in connection with the supply or acquisition of any goods or services in the United Kingdom or a part of the United Kingdom."

Thus attention focuses on adverse effects on competition (AEC). If the CMA finds that there is an AEC, it has a duty to decide whether it should take action and if so what action should be taken, and/or whether it should recommend that others take action, to remedy, mitigate or prevent the AEC concerned

> "or any detrimental effect on customers so far as it has resulted from, or may be expected to result from, the AEC" [71]

Section 5) of the Act further clarifies that

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[68] Section 25(3) of the Enterprise and Regulatory Reform Act 2013 (the ERRA13).
[69] It is noteworthy that the second claim that Cardell makes in her speech, which we discuss later "that competition can be balanced alongside other policy objectives", **appears to** mistakenly imply the CMA can become involved in a balancing of objectives
[70] see Section 124)1) and (2) https://www.legislation.gov.uk/ukpga/2002/40/section/134
[71] As defined in section 134(4) of the Act

(5) “For the purposes of this Part, in relation to a market investigation reference, there is a detrimental effect on customers if there is a detrimental effect on customers or future customers in the form of—

(a) higher prices, lower quality or less choice of goods or services in any market in the United Kingdom (whether or not the market or markets to which the feature or features concerned relate); or

(b) less innovation in relation to such goods or services.

Section 7) of the Act further clarifies that

(7) In deciding the questions mentioned in subsection (4), the CMA may, in particular, have regard to the effect of any action on any relevant customer benefits of the feature or features of the market or markets concerned.

Section 8) of the Act then further clarifies that

(8)For the purposes of this Part a benefit is a relevant customer benefit of a feature or features of a market if—

(a) it is a benefit to customers or future customers in the form of—

(i) lower prices, higher quality or greater choice of goods or services in any market in the United Kingdom (whether or not the market or markets to which the feature or features concerned relate); or

(ii) greater innovation in relation to such goods or services; and

(b) the CMA or (as the case may be) the Secretary of State believes that—

(i) the benefit has accrued as a result (whether wholly or partly) of the feature or features concerned or may be expected to accrue within a reasonable period as a result (whether wholly or partly) of that feature or those features; and

(ii) the benefit was, or is, unlikely to accrue without the feature or features concerned.

S134 (3) then states that “In subsections (1) and (2) “relevant market” means” a market in the United Kingdom—

(i) for goods or services of a description to be specified in the reference”

This tends to imply the CMA has to stay with the Market defined in the reference

The CMA however claims the opposite, without citing relevant law permitting, instead relying on its own guidance, as follows in Paragraph 4 from its in it’s competitive landscape report.

4.5 The market definition(s) used by the CMA need not always correspond with the market for the goods or services described in the Terms of Reference ('relevant market(s)').[72] The CMA may conclude that the market definition goes wider or narrower than those goods and services.[73]

[72] Here the CMA cites its own Guidelines for market investigations April 2013 (CC3) paragraph 26.
[73] Ibid., paragraph 131.

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