

Comment on

The UK Competitive Market Authority's (CMAs)

Cloud Services Market Investigation

Updated Issues Paper and Working Papers 4-6
Released June 6 2024 on

The Supply of Public Cloud Infrastructure Services
in the UK

Covering The CMA's

1. Updated issues statement on Public cloud infrastructure services market investigation: 6 June 2024 (June 2024 Updated Issues Paper)
2. Licensing Practises Working Paper: 6 June 2024
3. Technical Barriers Working Paper: 6 June 2024
4. Potential Remedies: 6 June 2024

By

By Dr. George R Barker*
Member of Wolfson College
University of Oxford
Oxford Cross Disciplinary Machine Learning Research Cluster
(OXML)

11 JULY 2024

* Microsoft provides support for the Cross-Disciplinary Machine Learning Research Cluster at Wolfson College, University of Oxford (OXML). The views expressed in this paper and any errors are mine alone.

Table of Contents

Introduction	3
Outline	5
I. PART ONE: The Updated Issues Paper	6
A. The AEC test	7
1. The Objective.....	7
3. The Counterfactual	8
3. Burden and Standard of Proof	18
B. Market definition	19
C. Market power	20
D. Abuse of Market Power	22
1. The Egress Fees Theory of Harm.....	23
2. Committed Spend Discounts (CSDs) Theory of harm.....	25
3. Technical Barriers Theory of Harm.....	29
4. Licensing Practises.....	30
E. Evidence of Harm	31
F. Potential Remedies & Regulatory Failure	32
PART II The Licensing Practices Working Paper	33
A. Introduction & Overview	33
B. Market definition	35
1. Geographic market.....	35
2. Product Market Definition.....	35
3. General Comments on Market Definition.....	46
C. Market Power	48
1. CMA View	48
2. Comment	53
D. Abuse of Market Power	61
E. Evidence of Harm	61
F. Proposed Remedies and Regulatory Failure	62
CONCLUSION	63
References	64

Introduction

This report responds to an updated issues paper, and three working papers (WP) all issued by the UK Competition and Market Authority (CMA) on 6 June 2024¹ including

1. Public cloud infrastructure services market investigation: Updated issues statement, 6 June 2024 (June 2024 Updated Issues Paper)
2. Licensing Practises Working Paper 6 June 2024
3. Technical Barriers Working paper 6 June 2024
4. Potential Remedy Package 6 June 2024

This report should be read alongside my response to **three** earlier working papers (WP) issued by the CMA on 23 May 2024² including

1. Competitive Landscape Working Paper 23 May 2024;
2. Egress Fees Working Paper 23 May 2024; and
3. Committed Spend Agreements Working Paper 23 May 2024.

All the above papers originate from a Market Investigation Reference (MIR) by Ofcom to CMA on 5 October 2023 for an investigation by the CMA into *the supply of public cloud infrastructure services in the UK (cloud services)*.³

The CMA responded to the market investigation reference (MIR) by Ofcom 13 days later by publishing the CMA's first [Issues Statement](#) ⁴ on 18 October 2023 (October 2023 Issues Paper). This first CMA Issues paper described the basis of the MIR by Ofcom, how the CMA proposed to proceed and identified the four hypotheses or theories of harm the CMA proposed to investigate in paragraphs 21 to 35 pages 5-7 as

Theory of harm 1: Technical barriers make switching and multi-cloud harder and limit competition between cloud service providers Para 22-25

Theory of harm 2: Egress fees harm competition by creating barriers to switching and multi-cloud leading to cloud service providers entrenching their position. Para 26-28

Theory of harm 3: Committed spend discounts raise barriers to entry and expansion for smaller cloud service providers by incentivising customers to concentrate their business with one provider. Para 29-31

Theory of harm 4: Software licensing practices by cloud service providers restrict customer choice and prevent effective competition Para 32-25

The CMA noted in this first Issues Statement (October 2023 Issues Paper) that

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>

³ See Ofcom [Terms of Reference \(ofcom.org.uk\)](#) On 5 October 2023 the Office of Communications (Ofcom), in exercise of its powers under sections 131 and 133 of the Enterprise Act 2002 (the Act), as provided for by section 370(3A)(b) of the Communications Act 2003 read together with section 130A of the Act, made a reference for a market investigation into the supply of public cloud infrastructure services in the UK

⁴<https://assets.publishing.service.gov.uk/media/652e958b6972600014ccf9f6/Issuesstatementupdated.pdf>

21. The four hypotheses draw on the three features Ofcom was most concerned about and also the software licensing practice

In a Progress Update ⁵⁶ on 23 May 2024 (May 2024 Progress Update) the CMA noted

5. Today we have published the first set of our working papers: these are on the competitive landscape for cloud services in the UK and two of the four theories of harm set out in our issues statement: egress fees and committed spend agreements.

As noted I have previously commented on the three working papers accompanying the release of the May 2024 Progress Update listed above. ⁷

In its June 2024 Updated Issues Paper (UIP) the CMA then outlines its views on

- **On the competitive landscape and market outcomes in cloud services** including
 - *Nature of competition*
 - *Market definition*
 - *Shares of supply and market concentration*
 - *Market outcomes*
 - *Barriers to entry and expansion*
 - *Impact of AI on competition in cloud services*
 - *Market power*
- **The four hypotheses or theory of harm the CMA has been investigating:**
 - *Theory of harm 1: Technical barriers make switching and multi-cloud harder and limit competition between cloud service providers*
 - *Theory of harm 2: Egress fees harm competition by creating barriers to switching and multi-cloud leading to cloud service providers entrenching their position.*
 - *Theory of harm 3: Committed spend discounts harm competition by reducing the ability and incentive of rival suppliers to compete for each other's existing customers and/or leading to the weakening or marginalisation of some suppliers, for example because they lose, or fail to achieve, economies of scale.*
 - *Theory of harm 4: Software licensing practices by cloud service providers restrict customer choice and prevent effective competition*

The three June 2024 working papers listed above issued with the UIP cover Theory of Harm 1: Technical barriers, Theory of Harm 4: Software licensing, and a Potential Remedy Package the CMA is considering in detail.

In this report I respond in detail to the CMA's

1. June 2024 Updated Issues paper and (UIP) and

⁵ The May Progress Update report provided a short update on the CMA's market investigation into public cloud infrastructure services (cloud services), Outlining forthcoming publications, and Next Steps see <https://assets.publishing.service.gov.uk/media/664f0369bd01f5ed32794105/Progressupdate.pdf>

⁶ See May Progress Update Page 1 Para. 5-6 <https://assets.publishing.service.gov.uk/media/664f0369bd01f5ed32794105/Progressupdate.pdf>

⁷ Available here <https://www.gov.uk/cma-cases/cloud-services-market-investigation>

2. Licensing Practises Working Paper of 6 June 2024 (LPWP)

I do not separately address the June 2024 Technical Barriers working paper, or the June 2024 Potential Remedies working paper in detail here, as they don't really raise any new substantive issues relative to my response to the earlier May 2024 Working papers on the cloud services market - and my response to the UIP and LPWP in this report. My comments on them are therefore embedded in my response to the CMA's Updated Issues paper (UIP) that follows.

The June 2024 Licensing Practices Working Paper (LPWP) however has warranted a more detailed separate response in this report. The reason why is that the CMA's Licensing Practices Working Paper (LPWP) raises and explores new substantive issues about the Software as a Service market (SaaS) that were not identified in the CMA's May 2024 Competitive Landscape Working Paper (CLWP), presumably in part at least because the CLWP focused on the market for so-called public cloud infrastructure services in the UK (cloud services) that was the subject of the Ofcom MIR, and assumed that so-called SaaS products were part of a separate market from the so-called cloud services market.

Outline

This report is broken into two parts

- 1) Part One provides my response to the June 2024 Updated Issues paper (UIP) on all issues. This part therefore also provides an overview of my response to the CMA's emerging views identified in the UIP, and all its working papers so far on key issues as follows:
 - a) The AEC Test
 - i) The Counterfactual
 - ii) Regulatory Objective. What is the CMA's Objective?
 - iii) The Burden of Proof: What is the burden and standard of proof?
 - b) Market definition: What is the relevant Market?
 - c) Market power: Is there market power?
 - d) Abuse of market Power: is there an abuse of market power?
 - i) Theory of Harm 1: Technical Barriers to Entry
 - ii) Theory of Harm 2: Egress fees or
 - iii) Theory of Harm 3: Committed spend discounts
 - iv) Theory of Harm 4: Licensing Practices
 - e) Evidence of Harm: Is there evidence of harm to consumers?
 - f) Regulatory Failure & Potential remedies: What are the risks and costs of regulatory failure that need to be factored into any decision?
- 2) Part Two reviews the CMA June 2024 Software Licensing Working Paper (SLWP)
 - a) Market Definition
 - b) Market Power
 - c) Abuse of Market Power
 - d) Evidence of Harm
 - e) Potential remedies and regulatory failure

I. PART ONE: The Updated Issues Paper

This part provides my summary response to the CMA's emerging views identified in the CMA's June 2024 Updated Issues paper (UIP) on all issues. As noted I have previously commented on the three working papers accompanying the release of the May 2024 Progress Update listed above.¹ The additional or new elements presented here are my response to:

- 1) The CMAs new and very important section that appears relatively late in the UIP (paragraphs-81-90 pages 17-19) on its methodology for assessing adverse effects on competition (AEC), which is the CMA's core task in the MIR. Given the importance of this AEC test, I spend some time first reviewing the CMA's discussion of its fundamental approach to the AEC test, and therefore to answering the question "whether there is a feature or combination of features that prevents, restricts or distorts competition in connection with the supply or acquisition of public cloud infrastructure services in the UK or a part of the UK". The questions I address are: *What is the CMA's Objective to guide such an AEC Test assessment? What is the Counterfactual for such an AEC test assessment? And what is the burden and standard of proof?* The key new issue is that in the UIP the CMA states that its approach to the AEC test is to ask, "whether or not any feature, or any combination of features, can be expected to harm competition when measured against a theoretical benchmark". This raises the question: *What theoretical benchmark or counterfactual? Why? How then is this investigation of harm to be framed and why? And therefore the prior questions: how does the evaluation of the counterfactual relate back to the CMA's required regulatory objective? What is that objective? And what is the burden and standard of proof for the AEC test?*
- 2) Abuse of market Power: is there an abuse of market power? The new elements here are my response to the CMA's new discussion of
 - i) Theory of Harm 1: Technical Barriers to Entry which is the subject of a new working paper and which I discuss in this Part one of this report
 - ii) Theory of Harm 4: Licensing Practices which is also the subject of a new working paper, and which I do discuss further in detail in Part Two of this report

For completeness however, and before proceeding with part one, in outline part one that follows provides an overview of my response to the CMA's emerging views identified in the UIP on all the key issues as follows - much of which (except the above two points) was already covered in my previous report:

- a) The AEC Test
 - i) The Counterfactual
 - ii) Regulatory Objective. What is the CMA's Objective?
 - iii) The Burden of Proof: What is the burden and standard of proof?
- b) Market definition: What is the relevant Market?
- c) Market power: Is there market power?
- d) Abuse of market Power: is there an abuse of market power?
 - i) Theory of Harm 1: Technical Barriers to Entry
 - ii) Theory of Harm 2: Egress fees or
 - iii) Theory of Harm 3: Committed spend discounts
 - iv) Theory of Harm 4: Licensing Practices
- e) Evidence of Harm: Is there evidence of harm to consumers?
- f) Regulatory Failure & Potential remedies: What are the risks and costs of regulatory failure that need to be factored into any decision?

A. The AEC test

In this section I comment on the CMA's elaboration of the AEC test late in the UIP (paragraphs-81-90 pages 17-19) covering the objective, the counterfactual and the burden and standard of proof.

1. The Objective

What is the objective of the CMA in applying the AEC test? One needs to be clear on the overarching objective of competition law to formulate answers to the CMA's applied questions, or to apply the AEC Test

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.”⁸

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. The CMA can **fail** in its duty to promote competition for the benefit of consumers through exercising its powers under section 134 by

- Intervening too little in markets
- Intervening too much in markets

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

CMA Position

The working papers do not make reference to the overarching objective of the CMA, nor explicitly embed it in the formulation of its questions or hypothesis.

Comment

The failure to focus and reference the CMA's overarching objective reflects and creates a fundamental weakness in the working papers, and in all likelihood in the comments received to them. This is particularly true, as the CMA needs to use its objective to define and apply the AEC Test, as we shall see.

The relevant benefits to consumers identified in the ERRA that the CMA should be focused on, and seeking 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”⁹ 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

⁸ Section 25(3) of the Enterprise and Regulatory Reform Act 2013 (the ERRA13).

⁹ 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

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.

3. The Counterfactual

In order to promote consumer welfare over time the CMA needs to protect property rights, including the right or freedom to contract. Uncompensated takings of property rights through regulation can have serious, or substantial adverse effects on competition, market exchange, investment, and innovation that ultimately adversely affect consumers. The protection of property rights (including freedom of contract) is thus fundamental to achieving the CMA’s objective to promote competition, both within and outside the United Kingdom, for the benefit of consumers. In my view 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. 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 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”¹⁰ that have “an adverse effect on Competition”¹¹ (AEC) “or a detrimental effect on customers or future customers.”¹² – Not offset by “any relevant customer benefits of the feature or features”¹³ that are “unlikely to accrue without the feature or features concerned”¹⁴ “within a reasonable period”¹⁵ This needs to established before the CMA should even contemplate uncompensated takings of property rights.

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

The CMA comments that:

81. We have not yet reached any provisional conclusions on whether there is a feature or combination of features that prevents, restricts or distorts competition in connection with the supply or acquisition of public cloud infrastructure services in the UK or a part of the UK. Therefore we have not yet reached any provisional conclusion on whether or not there is an adverse effect on competition (AEC) in cloud services.

82 In coming to a provisional view, we will seek to establish whether or not any feature, or any combination of features, can be expected to harm competition when measured against a theoretical benchmark¹⁶

85. In the absence of a statutory benchmark, we use the benchmark of ‘*a well-functioning market*’ as set out in our guidelines. A well-functioning market is one that displays the beneficial aspects of competition, rather than an idealised, perfectly competitive market. The benchmark will generally be *the market envisioned without the features that are identified as harming competition*. 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) or
- If the nature of competition in the market is defined by arrangements put in place by government.¹⁷

¹⁰ section 134(2)

¹¹ section 134(2) of the Act

¹² s134(4) of the Act

¹³ s134(7) of the Act

¹⁴ s134(8)(b)(ii) of the Act

¹⁵ s134(8)(b)(i) of the Act

¹⁶ CMA Updated Issues Paper June 6 2024 page 17 paragraph 81-82

¹⁷ CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies (publishing.service.gov.uk), paragraphs 154, 30 and 320.

The CMA then goes on to expand on its theoretical benchmark but in a manner that is not that helpful, as follows.

86. In well-functioning cloud services market(s), we would not expect every customer to split its workloads across multiple providers in a highly integrated manner, or to switch provider every year. Rather, *we would expect customers to be able to choose between a range of alternatives and to be able to multi-cloud and switch between products/providers*. We note that customers may still face some sources of friction when exercising their choice of cloud provider, even in a well-functioning market, *due to any intrinsic features*.

87. *Lower barriers to multi cloud and switching* would be expected to enable:
(a) *customers to make effective decisions, readily access the most suitable products for their needs* (including via switching or using more integrated multi-cloud) boost their bargaining position in relation to providers and increase their access to a diverse range of innovative products.
(b) *providers to effectively compete for their rivals' customers and workloads*, rewarding those who are best able to win on the merits of their services. Innovation may increase, as the benefits of innovation might be higher because potential demand for new innovative products could be greater.

88. *We would also expect lower barriers to entry and expansion*. We might expect these to enable providers to enter, including with innovative new products and services, and expand if they are meeting the demands of customers. We might also expect providers to be able to compete for sub-sections of a customer's total workloads if switching and multi-cloud were easier to achieve.

The above paragraphs 86-87 seem to engage in a nirvana fallacy,¹⁸ or adopt an idealised, competitive market counterfactual (e.g. involving many suppliers and many buyers with no transaction costs) and promote a set of tautologies. Why would one expect

- *"customers to be able to choose between a range of alternatives"*
- *"Lower barriers to multi cloud and switching"* – lower than what?
- *"Lower barriers to entry?"* – lower than what?

The 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 in paragraphs 86-87 all expose an underlying tendency of the CMA to rely on an idealised competitive market or counterfactual. 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 -

¹⁸ 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 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.

and if so how - is it feasible? The latter requires reasonable evidence the market is not competitive, and 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 then goes on in the next paragraph copied below to focus on partial analysis of a market, focusing on ISV's without explanation, which seems unhelpful, or does not offer much guidance on the AEC test. This analysis is partial and unhelpful, given, for example, the costs of independent ISV's are not mentioned

89. Given that *ISVs are both customers and providers in cloud services*, they might contribute to a well-functioning market by perceiving and exploiting new market opportunities. For example, in a well-functioning market where there are lower barriers to switching and/or more integrated forms of multi-cloud,
- *ISVs may be in a position to generate greater rewards for bringing new and innovative products to market, as they could compete effectively with integrated cloud providers at a PaaS level.*
 - ISVs might also be incentivised to build services on a wider range of providers' infrastructure (or develop cloud-agnostic services) as the cost of integrating with smaller providers could more readily be recouped if those smaller providers were able to grow and compete more effectively with larger providers. As ISVs integrate with a wider range of cloud providers this could spur competition between those cloud providers further.

The CMA finally concludes

90. In summary, where the demand and supply side interact effectively *in a well-functioning cloud services market*, the *benefits of competition would be unlocked*. These benefits can include
- Lower prices,
 - Better quality,
 - A broader range of services offered,
 - Better service and
 - Higher levels of innovation.

It is notable that the CMA does not mention consumer benefits over time explicitly at this point. Thus its actual objective is obscured. The problem is that each of the above bullet points is only of interest as a means to achieve consumer benefit over time. Of further concern is that the CMA does not acknowledge that *all the above points are clear features of the markets the CMA is investigating* (i.e. lower prices, better quality etc.), which in turn is evidence that is consistent with these markets being competitive. Given consumer welfare optimization over time is the objective, each of the above listed points however can't be considered in isolation. If the goal is to enhance consumer benefits over time one has to look at outcomes "in the whole" and how they affect consumer welfare overall, given real world constraints, including costs. Standing alone, more of each of the above points cannot always be assumed feasible (e.g. better quality may be too costly in terms of price for a consumer), nor are all of the above always achievable as a group. The above list is also incomplete in terms of factors affecting consumer welfare.

Given the above problems with the CMA's overall approach in relation paragraphs 86-90 outlined above, we shall ignore these paragraphs as not offering any significantly useful guidance on the Counterfactual, and focus instead on what the CMA more fundamentally

said in paragraph 82 and 85 about its “theoretical benchmark” namely “a well functioning market”, which is defined as a “*market envisioned without the features that are identified as harming competition*”. I discuss this definition of the counterfactual below. In short it seems tautological, or circular, and as noted subject to the “nirvana fallacy” or the view that an idealised market is feasible or can be achieved. In addition I will address how the CMA when applying its AEC in its working papers in fact tends to treat many features of a well functioning market (e.g. economies of scale, and scope, product differentiation, transaction costs and learning by doing) as features that may cause AEC, which in turn necessitates the regulation of these features. This is what I call “the cake fallacy”, or a view that you can have desirable features of a market (e.g. economies of scale, etc.), and regulate them too.

Comment on the CMA's counterfactual analysis

As noted the CMA proposes to use the following counterfactual to analyse licensing practices and markets in paragraph 85 of the UIP:

85. In the absence of a statutory benchmark, we use the benchmark of ‘*a well-functioning market*’ as set out in our guidelines. The benchmark will generally be *the market envisioned without the features that are identified as harming competition*. 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) or
- If the nature of competition in the market is defined by arrangements put in place by government.¹⁹

To simply state that the theoretical benchmark is a “well functioning market” does not identify how one is to identify and judge a “well functioning” market”. It therefore does not provide a sound basis on which to analyse the state of competition in a market for the purpose of competition law.

It is basically tautological or circular and unhelpful to simply define the well functioning market (WFM) counterfactual as the “*market envisioned without the features that are identified as harming competition*”. This defines a WFM by comparing it to a market with an AEC feature, and then purports to define an AEC feature relative to a WFM, or a market without an AEC feature. It is hard to know where to start in such an exercise.

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 which seems most likely to minimize any

¹⁹ CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies (publishing.service.gov.uk), paragraphs 154, 30 and 320.

divergence. In a comparative institution approach however one cannot avoid a fulsome treatment of regulatory risks and costs, or regulatory failure

The question then really is 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? But it 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 in paragraph 85 above circumstances where indeed there may be reasons to depart from its general concept of a WFM at the outset, which may be helpful, namely if

- The "features are intrinsic to the market but nevertheless have anticompetitive effects (as in the case of a natural monopoly)" or
- The "nature of competition in the market is defined by arrangements put in place by government".²⁰

The first point is unclear, but may have some merit we explore further in detail below. The CMA basically leaves it unclear how one might define "intrinsic". But it seems to imply it is referring to a natural, inseparable, and beneficial feature of a market. The CMA thus seems to correctly imply in the paragraph 85 text above 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. 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 seems to treat the latter as evidence refuting the null hypothesis that the market is competitive.

Clearly however with a natural monopoly feature (and one presumes other so-called intrinsic features), it is best, optimal, or most efficient for consumers if the feature is retained. In the case of a natural monopoly 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 strong competition for scale, or greater efficiency - and 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. To do otherwise is to make regulation antithetical to healthy competition and healthy competitive outcomes - or a well functioning market. We return to discuss this first "intrinsic feature" exception further below.

The second exception in the paragraph 85 text above, about government defined arrangements for competition, also seems unclear, but in any event lacks merit. It is

²⁰ UIP paragraph 85 referring to CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies (publishing.service.gov.uk), paragraphs 154, 30 and 320.

unclear what CMA includes in the phrase “the nature of competition in the market is defined by arrangements put in place by government” This second exception appears to lack merit however if it implies ignoring, or suppressing the core and original role of competition law and the CMA in addressing the adverse consequences of poor Government action, that may distort competition or weaken competition e.g. exclusive legal privileges or monopolies or fiscal subsidies and tax advantages that create barriers to entry and market power.²¹ I shall not discuss this point further here, but return to it later in my discussion of legal and fiscal barriers to entry, and misappropriation of property (including regulatory) in my discussion of market power below, where I summarise my discussion of this point in my earlier report.

Returning to the first and more meritorious “intrinsic” exception point. When the CMA applies its AEC test in its Issues Papers and Working Papers, 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). This makes the CMA inherently *antagonistic to economies of scale* and other features of a competitive market outlined below. In short it 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.

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 thus does not fully recognize the impact of regulation. 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. 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).

²¹ This role of the courts and competition law 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.

The CMA does not really define what it means by intrinsic features. 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.

There 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 (as discussed above)
- 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 and working papers 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 can be significantly harmed by the CMA’s proposed remedies or interventions directed at them.

Under the Act the CMA should instead examine any existing market (with the above 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.
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, when doing its assessment of AEC in its market investigation, as noted are

- *Economies of scale (in production and consumption/network benefits).* The CMA s noted 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.

Conclusion on the Counterfactual

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 possess (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 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's 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.

3. Burden and Standard of Proof

The general law protects property rights, and this promotes consumer welfare, and the CMA should too. This can be best achieved by adopting the presumption or null hypothesis that markets involving the exchange of 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 their 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 seems to claim the standard of proof it faces for a MIR is a very low threshold - below reasonable it seems. While, as I showed in my last report, 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 guidelines the CMA even claims the standard of proof it should face is quite low, at the balance of probabilities.²² This seems unreasonably low, given the high costs, the foreclosure effect and irreversibility of regulation and the threat of major sanctions it now poses - namely

²² CCE paragraph 319 page 68

uncompensated takings of property rights, fines up to 10% of turnover and even criminal sanctions.

B. Market definition

What is the relevant market definition? It is not possible to assess CMA hypothesis about egress fees, CSD, technical barriers or licensing practices without a clear market definition. One has to define the relevant market first in order to decide whether agreements with such explicit or implicit terms or features (i.e. egress fees, CSD, technical barriers or licensing practices) create an AEC in a market in the UK. The CMA does not formally and explicitly derive the relevant market(s) in theory or use the received hypothetical monopolist test (HMT) or small but significant and non-transitory increase in price (SSNIP) test empirically to define the market.

This work is necessary to establish a prima facie case for the MIR. As outlined in my earlier report the CMA's approach to the so-called cloud services market in essence adopts a fundamentally supply side engineering approach to defining the relevant products it proposes to analyse, combined with the use of metaphors (e.g. "the cloud", "Platform"). As I further outline in Part II below, in the case of its licensing practices report, the CMA starts with the products of a particular firm (Microsoft software), which inverts the evidentiary burden, and practically assumes a non-competitive market.

On so-called public cloud services as outlined in my earlier report 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.

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. 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.

By comparison I propose and derive and explore a wider market than the CMA. I propose a wider market for the acquisition and supply of computer storage and processing power (CSPP) globally. This global CSPP market subsumes the various separate markets the CMA uses (i.e. IaaS, PaaS and SaaS) and others.

I discuss the CMA's licensing practices working paper (LPWP) in more detail in part II of this submission below, but in summary in the LPWP on market definition for relevant software products (including SaaS) the CMA adopts a global geographic market definition. This is the *correct* decision on the geographic extent of the market, but it also contradicts the CMA's geographic market definition on IaaS and Paas, which is only the UK and EEA - but should be global too.

The CMA also then fails to recognise the obvious implication that if the software market is global then this means the relevant software market is very competitive. It is very unlikely therefore that Microsoft has market power in its software products, and unlikely that its various products are in different markets as the CMA claims.

The problem however is that the CMA so narrowly focuses on each of Microsoft's products that it ends up with a market for each product. This leads the CMA to underestimate the extent of the market and competition - and overstate both the extent of market power of firms in each market including Microsoft, and the potential for abuse of market power, by for example licensing practices as discussed later.

Problematically the CMA also quite simply interprets *product differentiation* as a reason to consider a narrow market definition. It considers one that is very small, indeed reduced to the product of a single company as a result. It further treats product differentiation as a source of market power. This ignores the fact the nature of competition for copyright goods like software is both very intense and inevitably involves *product differentiation*. Copyright only protects the expression - not the underlying idea. Thus software markets like other copyright markets are rife with production differentiation (expression) as their predominant form of competition. Product differentiation *expands* the domain of competition and intensifies competition on product design. This is ultimately a good thing, providing the basis for greater investment in better creative goods like software, or in creation costs, and innovation, and as a result greater consumer wellbeing, given diverse consumer preferences can be better met by better and more product differentiation.

The CMA also ignores the competitive impact or threat *open source* poses to proprietary or copyrighted software products. With open source the creator of software in effect waives some of their property rights under copyright law. Microsoft then competes with people practically giving away their works in barter type economic exchanges that are part of its own market, and that it has to compete with. This critically expands the market considerably, and prevents Microsoft acquiring or abusing any market power. Indeed in a sense open source is once again proof that markets don't need regulators to find voluntary solutions or counters to market power. The other key limitation on market power in software markets is the *scope for piracy* - which is extensive in all digital copyright product markets, where the marginal costs of copying is reduced to a few "clicks".

C. Market power

What is the theory and evidence to prove the existence of market power in the relevant market(s)? This question has to be answered prior to addressing whether egress fees,

CSD's, technical barriers or licensing practices create an adverse effect on competition (AEC) in CSPP (including software markets).

To be subject to CMA regulation under the Enterprise Act any market feature has to have the impact or effect of adversely affecting competition. But this depends on the prior question whether there is market power, or whether the market is sufficiently competitive to prevent sustainable anticompetitive behaviour, and have an AEC in the first place. Five key relevant competitive conditions are relevant in this regard

- 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), one then needs to evaluate the markets' five key competitive conditions and whether there is evidence of any market power, which I did in my earlier report, which showed there is no market power in the public cloud infrastructure or CSPP market, and similarly for software, which I discuss in Part II of this submission below.²³

In my earlier report I showed on all five counts that the CSPP market is competitive, and in Part II of this report I show the software market for Microsoft products is also competitive.²⁴ For example the explicit or implicit terms of contracts or agreements (on Egress fees, CSD, Technical Barriers and Licensing Practices) could not have an AEC, as there are no barriers to entry to new entrants, nor to expansion by the parties in the relevant public cloud infrastructure, CSPP or software markets. 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 (e.g. to product differentiation, open source and piracy in software). The prior and more primary question on competitive conditions (including barriers to entry and expansion) needs to be addressed first before considering egress fees, CSD's technical barriers and licensing practices and whether they can have AEC.

The problem with CMA's approach is that it fails to define a barrier to entry and expansion properly as a cost incurred by a new entrant, or expander but not by an incumbent. It instead treats *economies of scale* (both in production and consumption - the latter termed *network effects*) *product differentiation*, *economies of scope*, *transaction costs 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 CSPP market when there is not.

Whatever the explicit or implicit details or terms of agreements (on Egress fees, CSD, Technical barriers and licensing practices) 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.

²³ Available here <https://www.gov.uk/cma-cases/cloud-services-market-investigation>

²⁴ Ibid

As outlined in my earlier report and in Part II below, the CMA would be better dropping this investigation and focusing instead on markets where there are significant *legal, regulatory or fiscal barriers to entry and/or extensive misappropriation of property rights* that create significant barriers to entry and expansion and therefore incumbent market power. These markets are legion and their problems manifest. The abuse of market power in markets with high regulatory or fiscal barriers to entry, and/or extensive misappropriation of property rights are legion and warrant more attention by the CMA, than so-called digital markets for cloud public infrastructure services and software, as outlined in my earlier report and in Part II below.

D. Abuse of Market Power

Is there 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

The CMA's working papers on egress fees and CSD's terms allege the parties contracts or agreements may be in restraint of trade, hypothesising that both egress fees and CSD's terms in the parties contracts or agreements have an adverse effect on competition and harm consumers. Similarly with the CMA's working paper on technical barriers the CMA hypothesises that firms in the Cloud public Infrastructure service market may make technical choices that have an AEC and harm consumers. Similarly with the CMA's working paper on Licensing Practices the CMA hypothesises that firms in the software market, explicit or implicit terms in the parties contracts or agreements may have an adverse effect on competition and harm consumers.

Before raising these hypothesis or theories of harm the CMA should have answered the above three prior questions properly first (on the AEC test, market definition and market power), and thus have provided sound theoretical grounds or reasons and prima facie evidence why the agreements on excess egress fees and excess CSD and inefficient technical choices and licensing practices would be likely to even arise and have an AEC and harm consumers.

I briefly outline below my analysis of why explicit or implicit terms on egress fees, CSD, technical arrangements and licensing practises in agreements cannot have an AEC or harm consumers before turning to discuss each working papers theory of harm and why it fails in more detail. In short given both the so-called cloud public infrastructure market and relevant software market is competitive and the CMA has not been able to refute these hypotheses, the four theories of harm fail. If the providers of cloud public infrastructure services and software services have no market power, they cannot enter agreements with explicit or implicit terms on CSDs, egress fees, technical choices and licensing that have an AEC or harm consumers.

There are two main reasons the party's contracts cannot lead to AEC. First there is no scope of recoupment, given there is no market power market competition would eliminate such contract terms or features with AEC over time. Second contract terms like the ones identified would not be enforceable in the common law doctrine of restraint of trade anyway if they have an AEC.

The problem of recoupment is that the provider asking for, or offering prices like “excess” egress fees, “excess” CSDs or “excess” licensing fees that are above efficient competitive market rates, or quality terms for example on technical barriers or in licensing practices that are lower quality than efficient competitive market offerings will incur a cost upfront that they can’t recover. Excessive egress fees above market rates will have costs elsewhere in a contract required to induce people to agree to such excess egress fees in the first place. CSD’s are also clearly costly upfront particularly if the discounts are below direct and opportunity costs, or not aligned to actual economies of scale they might legitimately reflect, and as the CMA must be assuming. Technical barriers that restrict competition but that could be efficiently mitigated will have costs elsewhere in a contract to compensate users, and induce people to agree to such technical barriers in the first place, and the risk or cost the technical barrier poses. So too terms in licensing agreements involving excess fees or poorer quality that can only be avoided if one uses the provider’s infrastructure.

Given the CSPP and software markets are competitive the CSPP and software firms will not be able to recover these upfront costs of excess egress fees, excess CSDs, excess licensing fees, technical barriers, and low quality licensing terms later. New entrants will enter the CSPP and/or software market, and incumbents will expand to take the clients from them if they do, denying recoupment.

Not only is the CMA’s *theory of harm* weak on egress fees and CSDs, technical barriers and licensing practices weak, the CMA does not provide any *prima facie evidence* that the agreements are unreasonable restraints of trade as claimed. If they were however, they would be unenforceable anyway under the common law restraint of trade - and not require CMA intervention.

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 on going and expanding investigation, and its threatening proposed remedies involving uncompensated takings of market players property rights and interference in their affairs is arguably failing to act reasonably and within its jurisdictions or powers.

1. The Egress Fees Theory of Harm

There are three 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 CSPP 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 CSPP 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 CSPP 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 CSPP 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 CSPP firm to later recoup the short run opportunity costs of the compensating inducements and lost new customers. The CSPP 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 CSPP 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 CSPP 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 CSPP 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 CSPP 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 CSPP 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 CSPP 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 CSPP 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.

There is therefore 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.

- 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

These potential remedies 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.

2. Committed Spend Discounts (CSDs) Theory of harm

As noted the CMA’s assumption that AWS and Microsoft’s size gives market power runs through the paper. In effect the CMA targets specific players, which is inappropriate if not contrary to the rule of law, just by virtue of their size, not based on clear and sound theory and strong evidence. It also prejudices the CSD’s AEC, and discards without evidence the efficiency or economies of scale explanation for CSD’s outlined above.

The CMA’s claim that

“By virtue of the positions of AWS and Microsoft in the market(s), as outlined above, we consider any impact on competition arising from their CSAs/CSDs is likely to be greater than any impact from CSAs/CSDs offered by smaller providers”

does not follow in economic theory. The impact simply depends on other key market level conditions discussed above especially barriers to entry and expansion and so called Hicks Marshall laws, which includes “the importance of being unimportant”. The more “important” AWS and Microsoft’s are the less likely they will be able to “pass through” the costs of their anti-competitive behaviours, or have an AEC that adversely affects consumers. Most of AWS and Microsoft’s revenues also come from large firms whose switching costs are less than 1% according to CMA itself. This means that it is easy for them to switch to competing CSPP firms and new entrants to discipline anti-competitive behavior. The large size of AWS and Microsoft’s customers and suppliers also gives them countervailing bargaining power to enable them to negotiate efficient deals and counter or avoid CSP firm behaviours that have AEC, and detrimental effects.

Based on my analysis in my earlier report, the appropriate market definition is the market for the acquisition and supply of computer storage and processing power (CSPP). Based on my earlier analysis the working or null hypothesis also has to be that the CSPP market is competitive, and the CSDs thus simply reflect economies of scale (e.g. in production and consumption of various types). In a competitive market a CSPP firm will pass through economies of scale, charging lower prices as committed spend

increases. The evidence that the CMA cites also tends to confirm that the discounts reflect economies of scale: as follows

2.16 The evidence we have seen to date suggests that customers with a CSD represent a large share of each of AWS and Microsoft's total UK cloud revenues. It also suggests that while CSDs are not common across all users of cloud services, they are much more common for customers with higher spend.

The CMA has not presented a reasonable theory, and strong contrary evidence to refute the hypothesis that the CSPP market is competitive and CSD simply reflect economies of scale, and show that CSD have an AEC and detriment to consumers current or future.

Instead the CMA advances an unclear and ill-founded theory that CSP firms can threaten higher prices on “sticky demand” unless the customer places some or all of the contestable demand with them as follows:

- a) A customer has some of its demand met by a supplier, and the extent to which the customer can exercise effective choice over that demand is limited by factors such as lack of suitable alternatives or barriers to switching (we call this ‘sticky demand’); and
- (c) the supplier of the ‘sticky demand’ imposes a condition such that the customer must place some or all of the contestable demand with them, or otherwise pay higher prices (lose a discount) on the sticky demand.

The first problem here is what is meant by “sticky demand” or what are its causes in the CSPP or public cloud infrastructure market? This is not clarified other than to say “lack of suitable alternatives or barriers to switching”.

The lack of alternatives is not necessarily a relevant competition law phenomenon. Scarcity is a fact that economic theory takes as given and attention focuses on decision making over a feasible set of choices with opportunity costs. As we have shown in the market definition section there are no lack of suitable alternatives for CSPP. We identified 27 different options in terms of product mixes for highly stylized versions of IaaS, PaaS and SaaS. There are also clearly low barriers to switching for most CSPP customers, with switching costs as low as 1%.

The problem with this sticky demand /contestable demand leveraging theory of harm (ToH) is the same as with the Egress fees theory.

- 1 Contracting in its entirety. The CMA's theory of harm fails to look at contracting in its entirety. To offer a discount is costly to the supplier so presumably there must be some gain to supplier. If a contract includes discounts then in a competitive market there is likely to be an adjustment in other terms governing demand or supply behaviour that compensates the seller of CSPP for the net expected cost of the discount. If a CSPP firm offers a discount then of course a customer may be willing to adjust another term of a contract and for example agree to use more of the providers services. The gain to the supplier is the added profit from such sales, but also the infra-marginal gain from greater economies of scale. To offer a discount higher than the additional profit reaped from economies of scale would not however make sense. The competitive risk and gain to the CSPP firm that the CMA seems to focus on from discounts is that they are greater than economies of scale and thereby weaken a competitor, and lead to future higher prices, and/or lower future quality than the terms available in the market otherwise. It is not clear why a

rational customer would not foresee this future competitive risk however (were it real on which see below), and require that other terms would then have to adjust further to compensate commensurately for the competitive risk - further disadvantaging the CSPP firm offering the discount. The CSPP firm offering CSD that don't reflect their direct and opportunity costs and in particular economies of scale, would then have two further costs. First the cost of subsidising or "paying" further compensation, as an inducement in other terms of their contract to cover the "leveraging" threat or risk facing those accepting "excess" CSD terms that hold the future prospect of above market rates, or above CSPP firm direct and opportunity costs. 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 CSD and lock in etc. On the CMA's claim that the CSD may be used to hurt or weaken a competitor through lower prices, lower prices per se is not a relevant competition law concern. It is indeed one of the better outcomes of competition in a market. Prices below production cost may just be a promotional or marketing cost. Competition law concern is concerned with competition - not with harm to competitors per se. It is then not clear how a CSPP firm would hurt competition in the long term by charging less than their costs, through discounts that are greater than the economies of scale reaped from increased spend. On the reason why we turn to the recoupment issue below.

- 2 Recoupment: The CMA's theory of harm also falls foul of a recoupment problem that makes the alleged excess CSD behaviour by CSPP firms both irrational and unlikely. The CMA's theory of harm is that a CSPP provider could offer discount fees below direct and opportunity cost including economies of scale, and incur the up front cost, in the hope the discount will leverage off the sticky demand and lock the contracted consumer in, and enable the CSPP firm to later recoup the short run opportunity costs of the CSD and lost new customers because of the competitive risk it imposes. The CSPP firm might offer excess CSD the theory goes if they expect to be able to lock the customers in with the excess CSD, and recoup the short run opportunity costs of inducements and losses by charging above market fees and/or providing lower than market quality etc. to contracted customers over time, as the excess CSD have locked them in. In the absence of other barriers to entry or expansion however in the CSPP market (discussed in an earlier section) the CSPP firm hoping in the future to charge contracted customers above market fees and/or provide lower than market quality etc. will end up not able to recoup their initial opportunity costs of the CSD. The reason why is that as soon as they try to recoup their excess CSD costs, contracted customers will simply switch to take up market contract terms from other providers having enjoyed the benefits of the excess CSD inducements. They will not accept the added burden the CSPP firm seeks to impose on them above what is available at market terms. They are likely indeed to just simply switch, and multi-cloud, with the help of the CSPP firms rivals, and leave it to the CSPP firm to sue for damages for breach of contract term perhaps.
- 3 Third Contract enforcement. The third problem is that under the ancient common law doctrine against restraints of trade, CSD terms requiring committed spends on unreasonable terms, or CSD terms that are overly restrictive of competition and harm customers will not be enforceable contract terms. Such terms in contracts if unreasonable are not enforceable and can be severed by the courts. Thus the CSPP firm that seeks to negotiate excessive CSD that unreasonably restrain competition later will find their contract term unenforceable. The contract terms will thus only be enforceable if the contract is self enforcing, or if in other words the above market CSD are offset by other terms of the contract, and so there is no incentive for the contracted customer to switch or multi-cloud later, and there is no barrier or lock in or scope for abuse of market power or AEC.

In short then, theoretically excess CSD cannot have an AEC, as the CSPP 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 CSD. The CSPP firm's upfront opportunity costs of CSD and compensating inducements, and new customer losses cannot be recouped by for example putting prices up above market rates later for contracted customers, as the CSPP 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 CSD contract terms are not enforceable under the common law doctrine of restraint of trade. It requires a market with barriers to entry and expansion that do not exist for this sticky demand theory of harm behavior to arise or be feasible, rationale or possible. Competitors can compete across the board on the package of "sticky Plus contestable" elements so one can't price distort the competitive price relativities. The point is that one needs to think about product mixes and look at the customer's options. They can clearly threaten or counter offer to switch their sticky demand to a competitor unless the CSPP firm charges market price relativities.

The CMA however seems to fall foul of the assumption that economies of scale are barriers to entry and expansion relevant to competition law. They are not. The CMA quite simply seems to imply the economies of scale are a bad thing or can have bad effects at several points. For example paragraph 1.17(a) states "The rival may not have the ability to profitably compete ...if the discount is such that the rival would have to price below its own costs." This implies that the competitor is less efficient and that intervention banning discounts would subsidise the inefficient. Similarly in Para 1.18 18 "If the rival is small and the market is characterised by significant economies of scale, the incumbent's CSA might also lead to the weakening or marginalisation of the rival as the rival fails to win enough demand units and therefore loses, or fails to achieve, such economies of scale." This again suggests we need to subsidise small firms to compete with large firms – this is a costly distortion and expensive – consumers would bear that cost. The last point on economies of scale just sounds like the limit price theorem – that any entrant is faced by the incumbent lowering their price to the limit their economy of scale permits to eliminate competition and deter entry. The new entrant or expander however only needs to recover costs during the pre-reaction period to make it worth their while – e.g. spot sales on an iterative "hit and run" basis. This would also discipline the incumbent in a tit for tat game.

The CMA's evidence and its theory harm from CSD 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 the following ascending order of costs, and degree of AEC and consumer detriment of the remedy.

Potential information remedies

Setting a maximum duration for any CSDs

Restrictions on the structure of any volume-related discounts

Banning the use of discounts based on commitments

These potential remedies are listed in order exhibit escalating costs because they give rise to increasing harm to consumers by involving an increasing degree of uncompensated taking of property rights, and interference with contract terms, that

have chilling and distortionary effects on market exchange, and associated increasing adverse effects on investment, innovation and competition in the market - and as a result increasing detriment to consumer. There is also a waste of taxpayers money spent on the MIR etc., that stimulates increases in wasteful rent seeking by market participants and others increasing industry level costs. It is too premature to be considering remedies in relation to CSD. The CMA's evidence, and its "leveraged sticky demand" theory of harm from CSD do not justify any further inquiry into the matter and especially not into potential remedies

3. Technical Barriers Theory of Harm

In the Technical Barriers working paper the CMA notes that:

1.1 This working paper presents our initial analysis of the potential impact of technical barriers on public cloud customers' ability and incentive to switch and multi-cloud and whether they limit competition between cloud service providers.

The CMA later notes that

1.2 For this analysis, we have considered the following:

- (a) the technical barriers that customers face when using multiple public clouds and switching between public clouds, as well as any impact these have on their behaviour; and
- (b) any mitigations that reduce these barriers, as well as cloud providers' incentives to reduce them.

1.3 The focus of our evidence-gathering has been mostly on customers

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 just have to live with them as best they can, and there is nothing the CMA can do.

If there are choices that can be made about technical barriers (e.g. to mitigate them as the CMA suggests in Para. 1.2 b above)) 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 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 outlined in paragraphs 1-1 -1.3 of the CMA report above are not worth examining further for the same reason as the CMA theories of excess egress fees and excess CSDs. 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.

4. Licensing Practises

Given the market for software is competitive (as outlined in detail in Part II below) and the so-called public cloud infrastructure services market is competitive (as outlined in detail in my earlier report) there is no scope for Microsoft to abuse market power in its licensing practices as alleged by the CMA 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 compensate, or offset these higher charges, or lower quality for consumers, and induce consumers to agree. To the extent it does not do this Microsoft would lose customers to alternative software and cloud providers who offer more flexibility at market rates - foregoing profits on its software and cloud business.
2. Recoupment: Further if Microsoft did attempt this costly strategy on excess software fees and below market quality, to try and lock in its customers to its cloud services, then it would not be able to later recoup the costs of the offsetting inducements or compensating terms required in point 1 above. Its

customers would simply take the benefit of the inducements up front, and with the assistance of Microsoft's rivals exit their relationship with Microsoft to use rival cloud services, or refuse to pay the excess fees, and/or use substitutes for Microsoft's software.

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.

If however Microsoft's software products are provided at a higher price to customers that choose one of Microsoft's rivals to be their cloud infrastructure services 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, and therefore have a legitimate business rationale, be efficient and therefore benefit consumers or be in consumer's long term interests. The *direct cost* differential explaining such price differentials may for example be due to required changes in level of support, or security etc. if customers choose one of Microsoft's rivals in cloud infrastructure services to be their cloud provider, rather than Azure. While the *opportunity cost* differential explaining such price differentials if consumers use Microsoft's rivals cloud services 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 direct costs of the changes in level of support, security or service required given the price paid by customers for Microsoft support 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.

E. Evidence of Harm.

Is there adequate theory and evidence on the nature and extent of harm from the agreements on egress fees, CSDs, technical barriers and licensing practices?

The CMA does not advance a sound theory of harm in relation to Microsoft's licensing practices or introduce any evidence of harm from the above behaviours.

The CMA provides no evidence of harm from egress fees and CSDs, technical barriers and licensing practices. As I showed in my earlier report the profitability data of suppliers presented by CMA is not relevant evidence of market power, or the scope for its abuse and/or of harm. Rather the profitability observed is explained by the high risks and/or rapid growth requirements of these new and innovative markets, both compensating for greater risk and signalling the need for greater capital investment in these markets. When adjusted for risk and "bottleneck relief investment returns" the profit levels are normal (i.e. reflect opportunity costs), and/or are soon likely to return to normal due to competition as the markets mature.

The data is instead consistent with the markets being investigated being highly competitive. Prices have clearly fallen, not risen - and investment and innovation (e.g. AI) and quality are clearly rising in the markets being investigated. Innovation is clearly very high. This does not signal the need for regulation, or refute the null hypothesis that the markets are competitive. The data is instead consistent with the markets being

investigated being highly competitive. There is no reasonable or strong evidence of harm.

In paragraph 71(c) on page 1 of its Licensing Practices Working Paper the CMA comments

“the CMA’s resources are limited. As such, we have prioritised the use of our resources on the areas where there is the potential for greater harm to arise. “

The first claim is clearly correct – “the CMA’s resources are limited” - that is true for everyone. The second claim however does not seem correct. The CMA would be better advised if it stopped its inquiry into the cloud services market and software markets that are highly competitive, innovative, and productive and prioritised and focused instead on other markets that more moribund, less competitive, less productive and less innovative and face more barriers to entry, often due to regulatory or fiscal interventions that create significant barriers to entry.

The abuse of market power in markets with high regulatory or fiscal barriers to entry, and or extensive misappropriation of property rights are legion and warrant more attention by the CMA as outlined in my earlier report. The Health market is a case in point.

F. Potential Remedies & Regulatory Failure

As noted given the markets for so called public cloud infrastructure services and for software are clearly competitive 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 the remedy involves uncompensated takings of property rights of the firms regulated.

What are the relevant risks and costs of regulatory failure by the CMA? Or of intervention when it is not justified? 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 involve a taking of property rights (including the right to contract) without compensation, and therefore have AEC and distort the markets operations, deterring investment, market exchange and innovation as a result and lead to the “balkanisation” of the global markets through domestic regulation and harm consumers as a result.

There is little or no discussion of regulatory failure and regulatory risk and costs by the CMA, yet this needs to be assessed to justify for the MIR in the first place. It appears the CMA assumes that so long as it can identify a restrictive contract term, either explicit or implicit like a technical barrier, then of course the CMA can make matters better, and this justifies a MIR.

The costs of regulation are not estimated and embedded into CMA analysis from the outset. The costs of regulation should instead be used to establish a threshold expected benefit from any inquiry or intervention to be established before proceeding even with an investigation. The costs of regulation rise with the frequency of intervention in property rights, the variation of this intervention and its rising trend in extent and scale.

Because these regulatory costs go uncompensated they have an adverse effect on competition, increase barriers to entry and expansion, deter investment, market exchange and innovation, and harm consumers as a result

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. Instead it appears to be assumed that inquiry into such matters itself has no adverse effect on competition, only benefits. 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. Public choice theory, regulatory economics and the theory of bureaucracy clearly explain the key problems or causes of regulatory failure including interest group capture, information costs, incentive problems, median voter problems, regulatory creep, regulatory bias etc. These are the drivers of harm to consumers from regulation as a result

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 MIR will clearly stimulate domestic interest group coalition formation, facilitate regulatory capture, and therefore exacerbate, and accelerate the risk of regulatory failure. This justifies not calling for contributions to the MIR at such an early stage, and ending the inquiries into competition in the CSPP 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.

PART II The Licensing Practices Working Paper

A. Introduction & Overview

The CMA's Licensing Practises Working Paper (LPWP) presents the CMAs initial analysis of the potential impact of software licensing practices by Microsoft on competition between cloud providers. In its Updated Issues Paper (UIP) the CMA summarises its emerging views on Microsoft's licensing practices based on its analysis and the evidence discussed in the LPWP covering

- The extent to which Microsoft has market power in software products and
- The extent to which the licensing practices may affect customer choice of cloud provider
- The adverse effect on competition (AEC) Test²⁵

In this Part I discuss the details on the first two points below drawing on the CMA's discussion in its licensing paper. In brief CMA claims that

²⁵ CMA Updated Issues Paper June 6 2024 paragraph 74

- 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; ²⁶ 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. ²⁷ And
- 3) Microsoft's rivals in providing cloud infrastructure services do not have an effective counter strategy; ²⁸

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 above theory of harm depends 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 I refer to as the Computer storage and processing power (CSPP) 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

²⁶ Licensing practises Page 6 Paragraph 1.10 (a)

²⁷ Licensing practises Page 6 Paragraph 1.10 (c)

²⁸ Licensing practises Page 6 Paragraph 1.10 (b)

- i. Market definition: What is the relevant Market(s)?
- ii. Market power: Is there market power?
- iii. Abuse of market Power: is there an abuse of market power?
- iv. Evidence of Harm; is there evidence of harm to consumers?
- v. Regulatory Failure: What are the risks and costs of regulatory failure that need to be factored into any decision?

B. Market definition

In what follows we 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

3.27 ... based on the evidence we have seen to date, our emerging 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.

2. Product Market Definition

The CMA starts 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 then 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 ²⁹ Specialised in Windows Development
Microsoft’s productivity suites	Productivity Suites for Enterprise ³⁰

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
- *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.

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

²⁹ 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.

³⁰ 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

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 Windows server operating system (MWOS),

3.32 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

3.28 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.

3.33 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

3.38 Based on the evidence we have seen to date, our emerging view is that the relevant product market is the market for server OSs and that it should not be widened to include desktop OSs.

3.39 A market no wider than the market for server OSs means Linux/UNIX server OS distributions would be included within the market. However, as set out below, these products are differentiated, which may weaken the extent to which they are substitutes. We consider this further in our market power assessment below.

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 Linux 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

3.32 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

3.33 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:

3.34 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.

3.36 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

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

3.35 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:

3.34 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
- (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)

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. 3.36 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 and processing power (CSPP) or capacity a firm may require. In other words an OS software can offer the sharing of computer storage and processing power, 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 and processing power (CSPP) market defined in my earlier report

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 we 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's conclusion or emerging view on desktop OS is as follows

3.88 Based on the evidence we have seen to date, our emerging view is that the relevant product market is the market for desktop OSs and should not be further widened to include server or mobile OSs.

3.89 A market no wider than the market for desktop OSs means MacOS/Chrome OS would be included within the market. However, as set out below, these products are differentiated, which may mean they are weak substitutes. We consider this further in our market power assessment below.

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 Server 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:

3.83 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.

3.84 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. 3.85). 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 and processing power (CSPP) or capacity a firm may require. In other words the sharing of computer storage and processing power, 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 conclusions 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.

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 emerging view as follows:

3.116 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 table. All RDBMS provide this same functionality.

3.117 Therefore, for the purposes of this investigation the relevant focal product is RDBMS, as we consider this is the narrowest plausible candidate market SQL

Server sits within.

3.124 Our emerging view is that if the evidence suggests other forms of database management systems may not be effective demand side substitutes for RDBMS. However, we are continuing to gather evidence on this question. Below, we assess market power with reference to both RDBMS and DBMS.

Comment

I note the CMA considers other forms of database management systems may not be effective demand side substitutes for RDBMS, but are continuing to gather evidence on this question other forms of database management systems may be 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:

3.144 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.

3.145 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.

3.146 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.

3.147 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. Therefore, for the purposes of this investigation the relevant focal product is IDEs specialised in Windows development as we consider this as the narrowest plausible candidate market Visual Studio sits within.

3.148 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

3.157 The evidence we have seen to date suggests that customers view IDEs not specialised in Windows development as alternatives to Visual Studio, that IDEs 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. Based on the evidence we have seen to date, our emerging 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 emerging view as follows:

3.177 Microsoft has various packages of products which provide some productivity functionality. For the purposes of this investigation, we consider solutions only for enterprise consumers.

3.178 We note that 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.

3.179 These packages include desktop installed versions of the software as well as access to the software through a SaaS solution in the browser. On the cloud, a customer can also access Microsoft 365 functionality through a virtual desktop (VDI) solution provided by Microsoft.

In a footnote the CMA comments that

Note, this functionality is only available for those using Microsoft 365 in Azure. Recently, Microsoft has made some functionalities of Microsoft 365 (the Microsoft 365 Apps for enterprise [namely Word, Excel, PowerPoint, Outlook and OneDrive]) available through Amazon Workspaces. Microsoft 365 Apps for enterprise now available on Amazon WorkSpaces services, accessed on 23 May 2024. This is discussed later considering VDI in section 5.³¹

On product definition the CMA then concludes

3.180 For the purposes of this investigation, the relevant focal product is productivity suites for enterprise as we consider this as the narrowest possible plausible candidate market which the Microsoft suites sit within.

In a footnote the CMA comments that

For the purposes of this investigation 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 functionalities³²

On product market definition the CMA then considers alternatives

3.181 We then considered 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

3.187 Based on the evidence we have seen to date, our emerging view is that the relevant market is no wider than productivity suites for enterprise, however in

³¹ See footnote 287

³² See footnote 288

our market power assessment we may consider the competitive constraint exerted by alternatives to individual applications within productivity suites.

Comment

This again seems like a very narrow market definition. It 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 options that customers mentioned. The CMA does however comment to the effect that the wider options identified by consumers are excluded when it comments

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

The CMA is not clear of 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 narrow 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. More deeply rooted and fundamental problems with the CMA's empirical approach are outlined below. These include first its "narrative approach", and second the data it relies on

- The CMA's Narrative Approach

First of all 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.³³ 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).

³³ This discussion of "narrative review" and "bias" closely follows the literature review of Watson, S.J. et al (2014)

- 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 from 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

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
 - o Refute a competitive market hypothesis, or SPE market definition and
 - o Justify the less competitive narrowest market definition, and
 - o Prove market power.

for reasons discussed in my earlier report.

C. 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 in these narrowest global product markets adopted by the CMA, and definitely unlikely to have significant market power in the global market for software products for enterprise (SPE) that I adopt. For reasons outlined in my earlier report, the market for so called cloud services or computing storage and processing power (CSPP) is also clearly very competitive. This implies that Microsoft is highly unlikely to have market power in any markets (my SPE or CSPP – or CMA's five software markets, SaaS, PaaS, or IaaS). Therefore it is not possible for Microsoft to leverage market power in its five software markets into the cloud public infrastructure market as claimed by CMA.

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.³⁴ The CMA advances this conclusion on Microsoft's market power through its analysis of market power in each of the five “narrowest” software product markets it has suggested in turn as follows.

Server OS Market - Windows Operating System

The CMA claims that:

³⁴ Licensing practises Working Paper Page 6 Paragraph 1.10 (a)

3.77 Based on the evidence we have seen to date, our emerging view is it is likely that Microsoft has a significant degree of market power in relation to Windows Server. This is because evidence suggests

- Windows Server is differentiated from other server OSs,
- Microsoft has a high share of the market for installed server deployments across cloud and on-premises deployments combined (noting Linux distributions collectively have a high share of deployments on cloud 150), and
- customer evidence suggests most customers would be unlikely to switch away from Windows Server in response to a 5% price rise.

3.78 We consider that this emerging conclusion would not be different, even if we had defined the market more widely to include desktop OS. This is because based on the evidence we have seen to date; our emerging view is that Microsoft also has a degree of market power in the market for desktop OS. In addition, customer evidence suggests customers would be unable or unwilling to switch away from Windows Server regardless of frame of reference.³⁵

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.

Desktop OS Market - Microsoft Windows 10/11

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

3.100 our current view is that Windows 10/11 is highly differentiated from the next-closest products and therefore product differentiation may act as a source of market power with respect to Windows 10/11. ³⁶

The CMA repeats this point several times including after it assesses markets share of Microsoft in the Desk-top OS market

3.102 ... (b) our emerging view is that Windows 10/11 is differentiated from the next next-closest products, so these shares might understate Microsoft's market power. ³⁷

The CMA expresses its overall conclusions as follows

3.114 In the round, based on the current evidence base, we consider it is likely that Microsoft has a significant degree of market power in relation to Windows 10/11. This is because evidence suggests Windows 10/11 is highly differentiated from the next-closest products, has a very large share of the desktop OS market and customer evidence suggests that customers are

³⁵ Ibid P34

³⁶ Ibid P38

³⁷ Ibid P39

unwilling or unable to switch away.

3.115 Regardless of the precise market definition, we would have the same emerging views concerning Microsoft's market power. This would be the case if we had defined the market more widely to include server and mobile OSs, as we consider Microsoft has a degree of market power in the market for server OSs, and customer evidence suggests mobile OSs are a potential substitute for desktop OSs in only specific use cases. In addition, customer evidence suggests customers would be unable or unwilling to switch away regardless of the frame of reference.³⁸

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

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:

3.143 The evidence suggests that Microsoft has a large market share considering both RDBMS and DBMS and that customers are generally unwilling to switch to alternative products. Based on the evidence we have seen to date, our emerging view is that it is likely that Microsoft has a significant degree of market power with respect to SQL Server. Regardless of the precise market definition, the evidence we have seen, in particular evidence on customer switching, would support our emerging view, whether we consider the product frame of reference as DBMS or RDBMS.³⁹

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
- 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:

3.175 Based on what we have seen to date, the evidence is mixed but we consider it is likely that Microsoft has a significant degree of market power in

³⁸ Ibid P43 Para. 3.114 and para 3.115

³⁹ Ibid P52 Para. 3.143

relation to Visual Studio. This is because customer evidence suggests Visual Studio is highly differentiated from the next-closest products, that some customers are unwilling or unable to switch away for some use cases, and there are various barriers to switching including cost and staff re-training.

3.176 We consider this emerging conclusion would not be different, even if we had defined the market more narrowly, to consider a market for IDEs used for Windows development only. For example, customer evidence suggests customers would be unable or unwilling to switch away regardless of frame of reference, and if we had defined a narrower market, customer evidence suggests that Visual Studio would be the leading product.⁴⁰

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

- 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:

3.211 Based on the evidence we have seen to date, our emerging view is that it is likely 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.

3.212 If we had defined a broader market for productivity software, or a narrower market for only Microsoft packages, we would have the same emerging views concerning Microsoft's market power. For example, customer evidence suggests customers would be unable or unwilling to switch away regardless of frame of reference.⁴¹

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, claiming that

⁴⁰ Ibid p59 Para. 3.175 and Para. 3.176.

⁴¹ Ibid pp65-66 Para. 3.211 and Para. 3.212.

3.213 The assessment above of Microsoft's market power in each individual software market may understate its market power vis-a-vis those customers which use more than one of those software products. If a customer is more likely to use one Microsoft product as a result of using another, any market power with respect to one product may reinforce any potential market power with respect to the other.

3.214 We are considering whether, and if so the extent to which, links between the Microsoft products may reinforce any market power that Microsoft might have. The key factors we are going to explore when considering the cumulative effect of any market power Microsoft may have are:

- (a) how the Microsoft products are sold or purchased; and
- (b) actual or perceived technical benefits or limitations to using the Microsoft products together.

3.215 These factors may make customers more likely to use multiple Microsoft products by impacting customer decision making in two ways: when a customer is selecting a software product for the first time; and by increasing barriers to switching.

(a) For example, if a customer is looking to purchase a new software product (eg productivity software), and it already uses a different Microsoft product (eg desktop OS), it may be more likely to select the Microsoft productivity product if it is easier and/or cheaper to buy them together.

(b) Having chosen the Microsoft productivity product, a customer may be less willing to consider alternative desktop products in future if they think the functionality of the Microsoft productivity product could be reduced by switching away from Microsoft's desktop product.

3.216 The effectiveness of these mechanisms, and therefore the degree of potential cumulative market power Microsoft may be able to exercise, may depend on the number of workloads a customer runs on Microsoft products, the extent to which those workloads are business critical, and the extent to which the workloads interoperate.⁴²

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, which it then interprets as reasons for concern about AEC from a competition law perspective, and
- 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
 - o Involve uncompensated takings of property rights and have an AEC and only

⁴² Ibid P66 Para. 3.213 to para 3.216

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

This does not look like a virtuous circle.

2. Comment

In summary then there are three broad reasons given by the CMA to justify its conclusion that Microsoft has significant market power. These three reasons are identified in the last three columns of table 3 below. The five relevant markets analysed by the CMA are identified in the first column in five rows of table 3. The ticks in the cells of the table indicate where each of the three reasons is relied on in each of the five markets.

Table 3: CMA's Market Power Rationale

CMA Markets	Product Differentiation	Market shares	Customer Evidence
Server Operating Systems (OS)	✓	✓	✓
Desktop Operating Systems (OS)	✓	✓	✓
Relational Database Management Systems		✓	✓
IDEs ⁴³ Specialised in Windows Development			✓
Productivity Suites for Enterprise ⁴⁴			✓

The rank by frequency with which the CMA relies on the three reasons justifying its conclusion of market power explicitly then are

1. Customer Evidence - in all five markets
2. Market shares - in three first markets and
3. Product Differentiation – in only the first two markets.

There are however fundamental theoretical and empirical problems with each of these three reasons relied on by the CMA for its emerging view that Microsoft has market power that undermine its conclusions. I address each reason in rank order 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

⁴³ 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.

⁴⁴ 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

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.

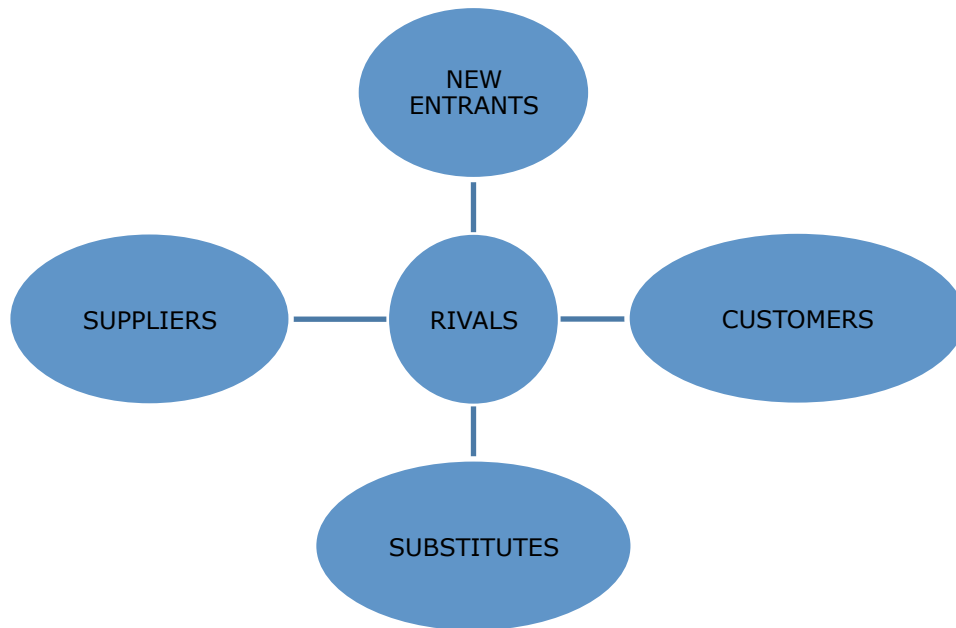
Table 4 Evidence quality Ranking

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,⁴⁵ but that firm is nevertheless constrained by the other four competitive conditions identified in the diagram above.⁴⁶

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 and processing (CSSP) or what the CMA focuses on cloud public infrastructure services. Substantial

⁴⁵ 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.

⁴⁶ 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

computer storage and processing power 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 and processing power (CSPP) 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 CSPP in Europe.

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 claims

3.9 One factor which can contribute to market power is product differentiation. Where customers value that differentiation between products, and therefore may not be willing to switch to an alternative, products become poorer substitutes for each other.

As we shall discuss in this section this claim is totally misleading, and 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 customers 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, its 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 theorem⁴⁷ 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 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:

⁴⁷ See Coase (1960)

- 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.⁴⁸ 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).

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

⁴⁸ 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 somewhat 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.

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.⁴⁹

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).

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

⁴⁹ To use the terminology of Liebowitz and Margolis (2005).” (Liebowitz and Watt 2006 p517)

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 practices. 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 all 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 low 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.

D. Abuse of Market Power

There is no scope for Microsoft to abuse market power as alleged by the CMA given the markets are competitive, for at least three reasons:

4. 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.
5. Recoupment: Further if Microsoft did attempt this costly strategy on excess switching 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.
6. 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.

E. Evidence of Harm

The CMA claims that Microsoft has market power and behaves in a way that causes harm as follows

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 licences 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 does not introduce any evidence of harm from the above behaviours. 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.

F. 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. 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 its "potential remedies" further rise in ascending order of costs (without any offsetting benefit), and in the 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. 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 in Paragraph 9.4 of the CMA LPWP regulatory costs (without any offsetting benefit) rise as follows – lowest cost are

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

Costs increase with

- Mandatory principle-based requirements.
- Mandatory Rules-based

Basically anything mandatory involves greater uncompensated takings of property rights of the firms regulated and therefore greater harm or costs.

Turning to the other CMA's listed remedies below, it is hard to place these in order of ascending cost costs (without any offsetting benefit) but they will all undoubtedly be very costly. I would make two changes in order of cost - which is move remedy 3 to the least costly, and remedy 1 as the most costly of a bad lot. I place remedy 1 or price regulation as the most costly as this prevents the regulated firm from offsetting the

uncompensated loss of the regulatory taking through a price adjustment and thus signalling to customers the true direct and opportunity cost - or efficient cost - of regulation. Having said that it is hard to judge the costs of non-price term regulation (remedies 3,2 and 4) without data of behaviour from a market for such terms.

Remedy 3: Increasing price transparency in relation to the use of Microsoft software products on Azure and third party cloud infrastructure

Remedy 2: Allowing customers to transfer previously purchased Microsoft software products to the cloud infrastructure of their choice without additional cost

Remedy 4: Parity of Microsoft software products and product functionality for use on Azure and third party cloud infrastructure

Remedy 1: 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 or *theory of harm relating to egress fees and Committed Spend discounts (CSD's) and technical barriers in the public cloud infrastructure market* is that these features of contract agreements

- 1) Have legitimate business, and efficiency rationales, and pro-competitive effects that benefit consumers, in that the terms (on egress fees and CSD and technical barriers) better ensure prices approximate suppliers direct and incremental costs or efficient costs in the computer storage and Processing Power (CSPP) market
- 2) Can not 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 in fact the agreements and the terms (on egress fees and CSD and technical barriers) are more likely to substantially enhance competition, and have legitimate business and efficiency rationales and effects as outlined above.

Turning to the CMA's hypothesis or *theory of harm relating to Licensing practices in the market for software products for enterprise (SPE)* my conclusion is that (as with egress fees CSD and technical barriers in the CSPP 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 are very unlikely to 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 in the CSPP and SPE markets. Indeed the CMA decisions to continue its investigation and then issue these working papers 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 into the CSPP and SPE market are more likely to lead to a lessening of competition than the agreements being investigated.

To test the hypothesis posed by the CMA however one first has to stand back and address a number of more fundamental or primary prior questions, and assess the evidence justifying the inquiry in the first place. In short the CMA’s working papers beg 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 the MIR and any further action.

References

- COASE R.H., 1960. The Problem of Social Cost. *Journal of Law and Economics*, 3.
- DEMSETZ, H., 2009. Creativity and the Economics of the Copyright Controversy. *Review of Economic Research on Copyright Issues*, 2009, 6(2), pp.5-12.
- EASLEY, R. W., MADDEN, C. S. & DUNN, M. G. 2000. Conducting marketing science: The role of replication in the research process. *Journal of Business Research*, 48, 83-92.
- FESTINGER, L. 1957. *A theory of cognitive dissonance*, Stanford, Stanford University Press.
- GIOTCELLI, M., & MOSER, P. (2014). Copyright and Creativity: Evidence from Italian Operas. Available at SSRN 2505776. Last viewed on 13 August 2018.
- GORDON, W. (1992a), “Asymmetric Market Failure and Prisoner’s Dilemma in Intellectual Property”, *University of Dayton Law Review*, 17; 853-69.
- GORDON, W. (1992b), “On Owning Information”, *Virginia Law Review*, 78; 149-281.
- GORDON, W. (1992c), “Of Harms and Benefits: Torts, Restitution and Intellectual Property”, *Journal of Legal Studies*, 21; 449-482.
- HARBERGER A.C. (1954) Monopoly and Resource Allocation, *The American Economic Review*, Vol. 44, No. 2, Papers and Proceedings of the Sixty-sixth Annual Meeting of the American Economic Association. (May, 1954) p.82
- HART, W., ALBARRACIN, D., EAGLY, A. H., BRECHAN, I., LINDBERG, M. J. & MERRILL, L. 2009. Feeling validated versus being correct: A meta-analysis of selective exposure to information. *Psychological Bulletin*, 135, 555-588.

- HOLDERNESS, C. G. (1985) A legal foundation for exchange. *Journal of Legal Studies* 14: 321–344.
- JAMES, S.J., ZIZZO, D.J & FLEMMING, P. (2014) Determinants and Welfare Implications of Unlawful File Sharing: A Scoping Review CREATE Working Paper 2014/05, April 2014
- KITCH, R (2000) “Elementary and Persistent Errors in the Economic Analysis of Intellectual Property”, *53 Vanderbilt Law Review* 1727 (2000)
- KLEIN, B., LERNER, A.V. and MURPHY, K.M., 2002. The Economics of Copyright "Fair Use" in a Networked World. *American Economic Review AEA Papers and Proceedings*. Landes and Posner, 1989,
- LIEBOWITZ, S.J. and MARGOLIS, S.E.. 1995. ‘Are Network Externalities a New Source of Market Failure?’, *Research in Law and Economics* 17; 1-22.
- LIEBOWITZ, S.J. and WATT, R. (2006) How best to ensure Remuneration for Creators in the Market for Music? Copyright and Its Alternatives. *Journal of Economic Surveys* Vol 20 No. 4 footnote 11
- OSWALD, M. E. & GROSJEAN, S. 2004. Confirmation bias. In: POHL, R. F. (ed.) *A Handbook on Fallacies and Biases in Thinking, Judgement and Memory*. New York: Psychology Press.
- PLANT A., 1934. The Economic Aspects of Copyright in Books. *1 Economica*, pp.167-95.
- SMITH, S. M., FABRIGAR, L. R. & NORRIS, M. E. 2008. Reflecting on six decades of selective exposure research: Progress, challenges, and opportunities. *Social and Personality Psychology Compass*, 2, 464-493.
- SMITH, S. M., FABRIGAR, L. R., POWELL, D. M. & ESTRADA, M. J. 2007. The role of information processing capacity and goals in attitude-congruent selective exposure effects. *Personality and Social Psychology Bulletin*, 33, 948-960.
- SHANTEAU, J. 1989. Cognitive heuristics and biases in behavioral auditing: Review, comments and observations. *Accounting, Organizations and Society*, 14, 165-177.
- STANLEY, T. D. 2001. Wheat from chaff: Meta-analysis as quantitative literature review. *The Journal of Economic Perspectives*, 15, 131-150.
- TVERSKY, A. & KAHNEMAN, D. 1973. Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5, 207-232.
- WASON, P. C. 1960. On the failure to eliminate hypotheses in a conceptual task. *The Quarterly Journal of Experimental Psychology*, 12, 11.
- WILHOLT, T. 2009. Bias and values in scientific research. *Studies In History and Philosophy of Science Part A*, 40, 92-101.
- YOO C., (2004) Copyright and product differentiation. *New York University Law Review* 79: 212–280. (April 2004)