

# Cloud services market investigation

Committed spend agreements  
working paper

23 May 2024

This is one of a series of consultative working papers which will be published during the course of the investigation. This paper should be read alongside the [Issues Statement](#) published on 17 October 2023 and other working papers published.

These papers do not form the inquiry group's provisional decision report. The group is carrying forward its information-gathering and analysis work and will proceed to prepare its provisional decision report, which is currently scheduled for publication in September/October, taking into consideration responses to the consultation on the Issues Statement and responses to the working papers as well as other submissions made to us. Parties wishing to comment on this paper should send their comments to [CloudMI@cma.gov.uk](mailto:CloudMI@cma.gov.uk) by **13 June 2024**.

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The Competition and Markets Authority has excluded from this published version of the working paper information which it considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [X]. [Some numbers have been replaced by a range. These are shown in square brackets.] [Non-sensitive wording is also indicated in square brackets]

## Contents

	Contents .....	2
1.	Introduction and framework .....	3
	Conceptual framework and analysis structure .....	4
	Background on CSDs .....	8
	Relevant parties' submissions .....	11
	Cloud providers and ISVs .....	11
	Industry bodies .....	12
	Customers .....	13
	The evidence we use in this working paper .....	13
2.	Analysis of CSDs .....	14
	Prevalence of CSDs .....	14
	Relevant cloud providers' views .....	14
	Data analysis .....	15
	Emerging views on the prevalence of CSDs .....	16
	Impact of CSDs on customers' choices .....	17
	Microsoft's views .....	17
	Customer evidence .....	18
	Emerging views on the impact of CSDs on customers' choices .....	22
	Impact of CSD pricing structure on competition .....	22
	Relevant cloud providers' views .....	23
	Share of demand that is sticky .....	25
	Proportion of customers' demand covered by commitments .....	28
	Discount rate .....	32
	Contextual factors .....	35
	Emerging views on the impact of CSD pricing structure on competition .....	36
	Potential benefits arising from CSDs .....	37
	Relevant cloud providers' submissions .....	37
	Emerging view of the potential benefits arising from CSDs .....	38
3.	Potential remedies .....	40
	Potential remedies to address the pricing structures of CSDs .....	41
	Introduction .....	41
	Banning the use of discounts based on commitments .....	42
	Restrictions on the structure of any volume-related discounts .....	43
	Setting a maximum duration for any CSDs .....	45
	Potential information remedies .....	46
	Questions for consultation .....	48
	Summary of potential remedies and invitation to comment .....	48

# 1. Introduction and framework

- 1.1 Committed spend agreements/discounts (CSAs/CSDs) are agreements between a cloud provider and a customer in which the customer commits to spend a minimum amount across the cloud provider's cloud services over a period of years, and in return, receives a percentage discount on its spend with that provider during those same years.<sup>1</sup>
- 1.2 This working paper presents our initial analysis of the potential impact of these agreements on competition in connection with the supply of public cloud infrastructure services in the UK, in particular the potential impact on switching and multi-cloud.
- 1.3 Ofcom discussed potential concerns as arising from committed spend *discounts*. In this working paper, we discuss the potential for competition concerns as arising from committed spend *agreements*. We consider this more accurately reflects the nature of the potential concern, which relates to the pricing structure of these agreements rather than the discount per se – in particular, the link that these agreements create between sticky and contestable demand, an element which is explained in our conceptual framework below. However, in order to be consistent with Ofcom's terminology, we used the term 'CSDs' in our evidence collection. Therefore, with the exception of the conceptual framework, the analysis of the evidence in the other sections of this paper is framed by reference to 'CSDs'.
- 1.4 We set out our emerging views based on the analysis we have done and the evidence we have seen to date but no provisional or final decisions have been made at this stage on any potential adverse effects on competition or on potential remedies, as our inquiry is ongoing.
- 1.5 We first set out our conceptual framework for conducting our assessment. We then set out some background, before moving to our analysis.
- 1.6 Throughout this paper, we focus mainly on AWS and Microsoft. We do so based on their position as the two largest providers of cloud services by some distance, as set out in the Competitive landscape working paper, which indicates that the two largest cloud players may have significant market power. By virtue of the positions of AWS and Microsoft, we consider that any impact on competition arising from their CSAs/CSDs is likely to be greater than any impact from CSAs/CSDs offered by smaller providers.

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<sup>1</sup> In this paper, we use the terms CSA and CSD interchangeably to mean the same type of agreement.

- 1.7 We have included some early thinking on potential remedies, together with some specific questions on these on which we would welcome views. We also welcome views on any other potential remedies.
- 1.8 Parties wishing to comment on this paper should send their comments to [CloudMI@cma.gov.uk](mailto:CloudMI@cma.gov.uk) by 13 June 2024.

## **Conceptual framework and analysis structure**

- 1.9 The provision of discounts can clearly be beneficial to customers. However, when discounts are provided under certain conditions and/or are structured in certain ways, they can give rise to concerns about harm to competition.
- 1.10 Pricing structures that incorporate conditional discounts, such as CSAs, can be thought of as a form of price discrimination: while some customers pay lower prices if they meet conditions set by the supplier, others will pay higher prices if they don't meet those conditions. One example of how a conditional pricing structure may raise competition concerns is 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
  - (b) the customer also has a portion of demand that is more contestable: the customer would be willing and able to place that demand with an alternative supplier (we call this the 'contestable demand'); but
  - (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.
- 1.11 The concern under such circumstances is that the prospect of paying a higher price for the sticky demand deters customers from considering alternative suppliers for their contestable demand. The incumbent supplier leverages its strong position over one portion of demand into a new segment where it would not otherwise have enjoyed the same strong position. Competition may be harmed to the extent that the conduct:
- (a) reduces the ability and incentive of rival suppliers to compete for each other's existing customers; and/or
  - (b) leads to the weakening or marginalisation of some suppliers, for example because they lose, or fail to achieve, economies of scale.

- 1.12 Any harm to competition may eventually lead to higher prices or lower quality for customers overall.
- 1.13 CSAs in this market have characteristics which relate to such pricing structures, including that they:
- (a) are based on a committed spend element;
  - (b) apply across multiple services; and
  - (c) create a link between sticky and contestable demand.<sup>2</sup>
- 1.14 As an example of how this concern could materialise in practice with CSAs, let us assume a customer has 100 units of demand overall – 75 units represent sticky demand with an incumbent provider and 25 units represent contestable demand. We also assume that the starting price is equal to £1 for each unit. In this example the customer has a CSA with the incumbent provider which gives the customer a 2% discount rate on its entire spend (ie both sticky and contestable) if it commits to buy at least 95 units from the incumbent provider.
- 1.15 To win any of the contestable demand the rival has to match the discount given by the incumbent provider's CSA:
- (a) For the first five units, the rival would only have to apply a 2% discount on each unit (eg charge 98p per unit). This is because for the first five units the customer can split its demand between the incumbent and rival provider while meeting its commitment with the incumbent provider.
  - (b) If the rival wins six or more units it would have to offer a larger discount. For example, to win just six units, it would have to apply a discount of 33% on each unit. This is because, if the customer split its demand in this way, the customer would 'lose' the 2% discount across the remaining 94 units it purchased from the incumbent provider. The rival has to offer this larger discount to compensate the customer for this 'loss'.<sup>3</sup>
- 1.16 As the rival wins more and more units, the discount it would have to apply to win those units decreases. That is because the rival can 'spread' the compensation it has to give the customer for not getting the 2% discount from the incumbent over a

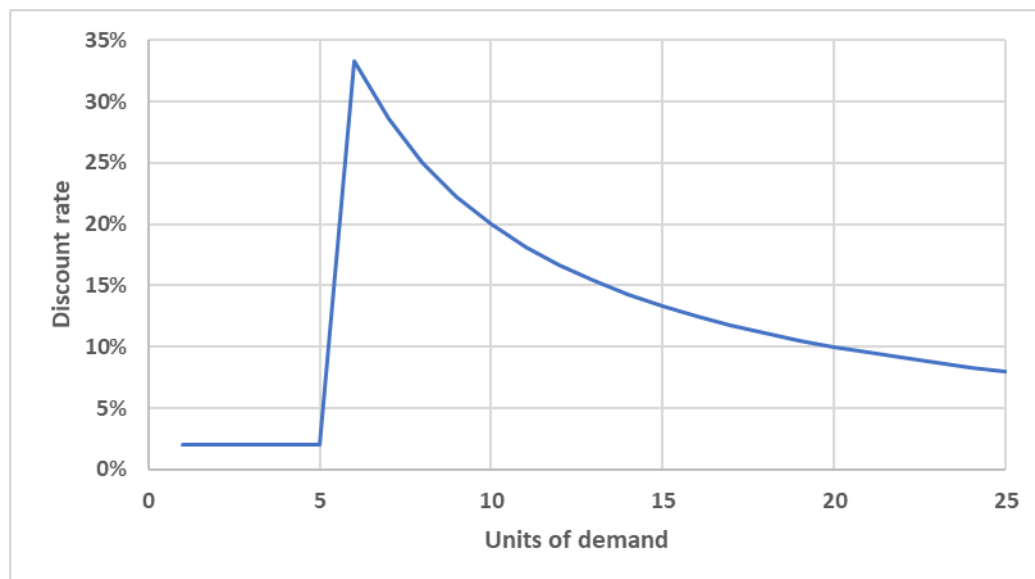
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<sup>2</sup> In our assessment, we also consider individual service CSAs – ie CSAs which only apply to individual services as opposed to across services, as well as cloud credits insofar as they are negotiated alongside CSAs and/or are part of the same CSA contract. The reason for this is that these discounts can interact with the CSAs they are being agreed with by increasing the effective or 'blended' discount rate obtained through the CSA. For example, a CSA contract with £1m commitment, a 10% cross-service discount, and £100k worth in credits is equivalent to a blended discount on the committed spend of 19% ( $10\% + (\text{£}100\text{k}/[\text{£}1\text{m}/(1-0.1)]) = 10\% + 9\%$ ). We note that  $\text{£}1\text{m}/(1-0.1)$  is the spend expressed in list prices needed to meet the commitment.

<sup>3</sup>  $0.33 = 0.02*(94+6)/6$ .

larger base of units. For example, to match the incumbent's price, the rival would have to apply a discount of 13% on each unit if it wins 15 units, and 8% on each unit if it wins all the 25 contestable units.<sup>4</sup> However, even if the rival wins all the contestable units, it would have to apply a discount which is four times larger than the one applied by the incumbent. Figure 1.1 below shows a visual representation of this relationship.

**Figure 1.1: Discount that the rival must apply to win units of contestable demand**



Source: CMA analysis.

- 1.17 In this example, the incumbent supplier leverages its strong position over the 75 units of sticky demand into the 25 units of contestable demand. The CSA can impact on both the ability and incentive of the rival to compete for the contestable demand:
- (a) The rival may not have the ability to profitably compete for more than five units if the discount is such that the rival would have to price below its own costs. For example, if offering an 8% discount on the 25 units would take the rival below its unit costs then the rival is not able to profitably compete for any of the contestable demand.
  - (b) The rival may not have the incentive to compete for more than five units, even if it would be profitable in absolute terms. This would be the case if, for example, the profit made from selling five units at a 2% discount is greater than the profit from selling 25 units at an 8% discount.
- 1.18 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

<sup>4</sup>  $0.13 = 0.02 \cdot (85+15)/15$ ;  $0.08 = 0.02 \cdot (75+25)/25$ .

the rival as the rival fails to win enough demand units and therefore loses, or fails to achieve, such economies of scale.

- 1.19 This example shows that the creation of a link between sticky and contestable demand is a key element of the potential impact of CSAs on competition. However, we consider that the extent to which this link actually drives any competition concern is an empirical question and depends on the assessment of a set of factors, which in turn define the structure of this paper as set out in the paragraph below.
- 1.20 In this paper, we set out our analysis relating to the following issues:
- (a) First, we consider the prevalence of CSAs. This provides an indication of the size of the segment that could be affected by these agreements.
  - (b) Second, we consider the extent to which CSAs affect customers' choices in relation to the allocation of workloads on public cloud. If these agreements play a limited role in customers' choices of where to allocate workloads, then they would be less likely to harm competition.
  - (c) Third, we consider the extent to which the pricing structure of CSAs, ie how the link between the sticky and the contestable demand is set up in practice, has characteristics that may cause them to harm competition. In doing this we consider the following:
    - (i) The share of demand that is 'sticky'. All else equal, if relevant providers benefit from a larger share of sticky demand for a representative customer, then CSAs offered by those providers are more likely to harm competition. Through their CSAs, those providers may be able to leverage their strong position over a larger portion of demand. This is influenced by the extent to which customers have close alternative options that they can quickly and easily switch to.
    - (ii) The proportion of customers' total demand covered by their CSA commitments. All else equal, if commitments cover a small proportion of what the customer intends to spend, then rivals may be able to compete for the remaining portion of demand as normal. However, if the commitments leave very little demand, the CSAs will have the scope to have an impact on a greater proportion of contestable demand. The more the cloud providers are able to tailor the terms of the CSAs to the circumstances of specific customers, the greater their ability to set commitments which cover a large proportion of customer demand.
    - (iii) The discount rate provided by the CSA. All else equal and for a given share of sticky demand, higher discount rates make customers less willing to split their demand across suppliers (because they would face



a higher price on their sticky demand if they did so). Similarly, larger discount rates would make it easier for relevant providers to leverage their strong position over the sticky demand into the contestable demand – that’s because larger discount rates would be more difficult for rival providers to match over the contestable demand.

- (iv) Some points of context which might aggravate any effects of CSAs on competition. These include the length of the commitment and the existence of any economies of scale. For example, to the extent that customers gradually meet their commitment over the course of the contract length then the longer the contract length the longer the period over which CSAs can impact on customers’ choices. Also, the presence and extent of economies of scale affects providers’ costs and can amplify the impact of the incumbents’ CSAs on the rivals’ ability and incentive to compete for the contestable demand. In particular, if economies of scale are significant, CSAs might lead to the weakening or marginalisation of rivals as they fail to win enough demand units and therefore lose, or fail to achieve, such economies of scale.

1.21 In this paper we also consider whether there are any potential benefits that may arise from CSAs even if they may give rise to harm to competition. For example, some cloud providers have submitted that commitments increase the predictability of demand for cloud services, and that this helps providers plan their investments – this is discussed in section 2 of this paper.

1.22 We have undertaken initial analysis to explore these issues. Our evidence gathering is still ongoing and our thinking will continue to evolve as this market investigation progresses and as we consider features of the market in the wider context of the competitive landscape and other potential features of the market. We have not drawn any provisional findings on whether CSAs constitute a feature that prevents, restricts or distorts competition in connection with the supply of cloud services in the UK.

## **Background on CSDs**

1.23 In this section we consider the eligible services and spend relating to AWS and Microsoft’s CSDs, as well as other discounts offered by AWS and Microsoft. We then discuss the CSDs offered by other cloud providers.

1.24 AWS’ CSD programme is included within the Pricing Addendum (PA) or Private Pricing Addendum to an AWS Enterprise Agreement.<sup>5</sup>

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<sup>5</sup> AWS’ response to Ofcom’s [3<].

- 1.25 Microsoft's main CSD programme is the Microsoft Azure Consumption Commitment (MACC). Microsoft also has another CSD programme, included within Microsoft's Enterprise Agreement, which is a type of overarching agreement for the acquisition of cloud services.<sup>6</sup>

### *Eligible services*

- 1.26 The set of AWS services eligible to be discounted is not identical to the set of AWS services whose spend counts towards a customer's spend commitment. Spend on a large majority of AWS first-party services<sup>7</sup> and a sizeable portion of third-party services<sup>8</sup> offered on AWS count towards a customer's spend commitment – this means that the fees incurred for most AWS services count towards drawing down the customer's spend commitment in any PA.<sup>9</sup> [redacted]<sup>10</sup>[redacted].<sup>11</sup>
- 1.27 Similarly, a customer's spending on any Microsoft Azure service counts towards Microsoft's CSDs.<sup>12</sup> Spending on third-party services counts toward Azure spend commitments when a substantial proportion of the service's workloads run on Azure and the service is purchased through Azure Marketplace.<sup>13</sup> However, while third-party services can be used to draw down the Azure CSD commitment subject to this platforming requirement, customers do not receive the discount on these services.<sup>14</sup>

### *Eligible spend*

- 1.28 AWS' cross-service discount applies to fees incurred for use on all AWS services (categorised as 'Eligible Services') except for a very limited set of AWS services (listed as 'Ineligible Services' on AWS' website).<sup>15</sup> All fees incurred for use of AWS services (which include both Eligible Services and Ineligible Services) count towards drawing down the customer's spend commitment in any PA ('Commitment Eligible Fees'), unless explicitly excluded.<sup>16</sup>
- 1.29 Similarly, Microsoft CSDs apply to the entire expenditure on eligible services except for third party services spend as per the above. This includes any

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<sup>6</sup> Microsoft's [response to Ofcom's Interim Report on the Cloud Services Market Study](#), paragraph 158.

<sup>7</sup> That is, services developed and operated by AWS itself.

<sup>8</sup> That is, services developed and operated by third parties that do not own the underlying infrastructure such as ISVs.

<sup>9</sup> [redacted] response to Ofcom's [redacted].

<sup>10</sup> [redacted] response to Ofcom's [redacted].

<sup>11</sup> [redacted] response to the CMA's information request [redacted].

<sup>12</sup> [redacted] response to Ofcom's [redacted]

<sup>13</sup> [redacted] response to Ofcom's [redacted].

<sup>14</sup> Microsoft's response to the CMA's information request [redacted].

<sup>15</sup> The list of Ineligible Services are set out on AWS' website at <https://ineligibleserviceslist.s3.amazonaws.com/s3.amazonaws.com/Ineligible+Services.pdf>; accessed 10 May 2024.

<sup>16</sup> AWS' response to the CMA's information request [redacted].

expenditure below and above the spend commitment, provided that the customer meets the commitment by the end of the commitment period.<sup>17</sup>

### *Consequences of unmet spend commitment*

- 1.30 AWS and Microsoft both have measures in place for situations where customers do not meet the spend commitment made as part of their CSD agreements.<sup>18, 19, 20, 21</sup>

### *Other discounts offered by AWS and Microsoft*

- 1.31 AWS and Microsoft offer several other discount programmes beside CSDs. These range from discounts on specific services based on booking cloud services capacity (eg servers) in advance, standard discount tiers which give increasing discounts to customers who spend/use more on specific services, and various types of credits (eg credits to startups and migration credits, ie credits given to customers for migrating workloads from on-premises/private cloud to public cloud).
- 1.32 We are not focusing on these other discounts in our assessment, with the exception of individual service CSDs or cloud credits insofar as they are negotiated alongside CSDs and/or are part of the same CSD contract. In particular, our initial analysis has focused on agreements for which customers commit to a certain level of spend. This is because it was the focus of Ofcom's reference and was an area of concern raised by stakeholders. We are aware of agreements for which the customer commits to use a certain volume of resources instead of committing to a certain spend – these are sometimes called Reserved Instances or Committed Use Discounts. While we have not included these other agreements in our initial analysis, we will continue to consider the extent to which they may have similar potential impacts on competition as CSDs.

### *CSDs offered by other providers*

- 1.33 Google also offers CSDs that are broadly similar to those of AWS and Microsoft in terms of their key characteristics. Google's CSDs are generally included within its Enterprise Agreement or Cloud Commitment Agreement, which are contracts governing any customer-specific GCP commercial terms.<sup>22</sup>
- 1.34 Smaller providers, such as IBM, Oracle, and OVHcloud, also offer CSDs although these have slightly different characteristics from the ones offered by AWS,

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<sup>17</sup> Responses to Ofcom's information requests [redacted].

<sup>18</sup> [redacted] response to the CMA's information request [redacted].

<sup>19</sup> [redacted] response to the CMA's information request [redacted].

<sup>20</sup> [redacted] response to the CMA's information request [redacted].

<sup>21</sup> [redacted] response to the CMA's information request [redacted].

<sup>22</sup> [redacted] response to Ofcom's information request [redacted].

Microsoft, and Google, eg shorter length, narrower scope, or different ways of applying the discount.

## Relevant parties' submissions

- 1.35 In this section, we present a summary of submissions relevant to CSDs made in response to our issues statement.<sup>23</sup> We only present the main high-level arguments here and leave the discussion of any detailed points to the specific sections below, which also include a wider range of views and submissions.
- 1.36 The submissions are mixed, with some parties considering that CSDs raise concerns and others considering CSDs to be part of normal business practice that should not be restrained.

## Cloud providers and ISVs

- 1.37 We have seen some submissions from cloud providers and ISVs who consider that CSDs raise concerns:
- (a) IBM said that CSDs reinforce the technical barriers to multi-cloud and present a challenge from customers' standpoint, as they can limit customers' ability to switch providers,<sup>24</sup> [redacted]<sup>25</sup>
  - (b) An ISV said that CSDs are reasonable business practices, but they raise barriers to entry and expansion for smaller cloud service providers by incentivising customers to concentrate their business with one provider. It said that a customer's non-cloud spend with some cloud providers (eg Google Ad spend) may also affect the level of compute discount received.<sup>26</sup>
  - (c) An ISV said that CSDs incentivise customers to buy third-party services in the larger providers' marketplaces, increasing their advantages, and leveraging their market power against those who choose not to join their marketplaces and requiring those customers to build on the larger providers' cloud infrastructure services in order to join their marketplaces.<sup>27</sup>
- 1.38 We have also had submissions, including from the two largest providers, that consider CSDs to be part of normal business practice:
- (a) AWS said that the hypothesis that CSDs can dampen competition by incentivising customers to use a single provider for most or all of their needs, or that cloud services providers require customers to increase their spend

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<sup>23</sup> [CMA Issues Statement on the Cloud Services Market Investigation](#)

<sup>24</sup> [IBM's response to the Issues Statement](#) dated 17 October 2023, paragraph 1.13.

<sup>25</sup> [IBM's response to the Issues Statement](#) dated 17 October 2023, paragraph 1.13-1.15.

<sup>26</sup> [Company A's response to the Issues Statement](#) dated 17 October, paragraph 2.1.

<sup>27</sup> [redacted] submission.

commitment upon renegotiation of their agreements does not hold. It said that discounts are pro-competitive and directly benefit customers, and that a closer look at its pricing and discounts makes it clear that they do not raise barriers to entry and expansion.<sup>28</sup>

- (b) Microsoft said that [redacted].<sup>29</sup> It said that its CSDs are a key aspect of price competition for new and existing customers – and lead to lower prices for customers in the UK.<sup>30</sup>
- (c) Google said that CSDs are mutually beneficial for customers and cloud providers, and that the prevalence of discounting practices is typically one indicator of a market that is functioning well.<sup>31</sup>
- (d) Oracle submitted that volume discounts are standard practice in the industry and are generally unproblematic, but contract duration might be an issue.<sup>32</sup>

### **Industry bodies**

1.39 We have also had submissions from industry bodies that consider CSDs to be beneficial to customers and investment in cloud services. We note that some cloud providers are ‘members’ or ‘supporters’ of these industry bodies. In particular, Microsoft is a sponsor of ACT/The App Association, AWS and Google are members of the Computer and Communications Industry Association (CCIA), and Google is a supporter of the Startup Coalition.<sup>33</sup> We also note that some of these submissions refer to discounts more generally and might not necessarily be relevant to CSDs:

- (a) ACT/The App Association said that the CMA should not prohibit the existing cloud discount structures, as this will inadvertently negatively affect small businesses with limited resources, who greatly benefit from the reduced-price offerings.<sup>34</sup>
- (b) CCIA said that committed spend discounts can provide a mutual benefit to the extent that they allow Cloud firms making large investments in infrastructure to increase the utilisation of those assets, allowing them to improve the overall proposition to their customers.<sup>35</sup>

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<sup>28</sup> [AWS' response to the Issues Statement](#) dated 17 October 2023, paragraphs 30-32.

<sup>29</sup> Microsoft's submission [redacted].

<sup>30</sup> [Microsoft's response to the Issues Statement](#) dated 17 October 2023, section 6.2.

<sup>31</sup> [Google's response to the Issues Statement](#) dated 17 October 2023, paragraph 32.

<sup>32</sup> [Oracle's response to the Issues Statement](#) dated 17 October 2023, page 5.

<sup>33</sup> <https://actonline.org/sponsors/>; <https://ccianet.org/about/members/>; <https://startupcoalition.io/join-us/>, accessed 19/04/2024.

<sup>34</sup> [ACT's response to the Issues Statement](#) dated 17 October 2023, page 5.

<sup>35</sup> [CCIA's response to the Issues Statement](#) dated 17 October 2023, page 3.

- (c) The Startup Coalition said that moves to restrict discounting strategies would, contrary to the proposed work from the CMA, be highly uncompetitive.<sup>36</sup>

## **Customers**

- 1.40 We assess customer views on CSDs in section 2 below.
- 1.41 We note that customers are unlikely to identify any harm brought about by CSDs. That is because customers are unlikely to internalise the effect of CSDs on the overall competitive structure and are rather likely to focus on the deal they are getting with their CSD. Therefore, it is likely that most customers would see CSDs in a positive light, even if CSDs were having an anti-competitive effect.

## **The evidence we use in this working paper**

- 1.42 We consider the following evidence in this working paper:
- (a) relevant submissions from various parties;
  - (b) information collected from cloud providers;
  - (c) our analysis of CSD data from cloud providers;
  - (d) customer views; and
  - (e) internal documents from AWS and Microsoft.
- 1.43 In relation to customers, we asked a range of questions. In line with the qualitative nature of the evidence we gathered from these customers, we have given a narrative summary of the key points that we consider emerge from the evidence.
- 1.44 We also commissioned qualitative customer research from Jigsaw Research.<sup>37</sup> This research was intended to capture a wider range and a different set of customers from those we spoke to through direct channels. We are still considering the full details of this research and have only incorporated key takeaways where relevant in this working paper. The evidence is set out in full in a separate paper (the Jigsaw report) and we will consider the evidence from this research alongside other evidence outlined in this paper in our ongoing work.

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<sup>36</sup> [Startup Coalition's response to the Issues Statement](#) dated 17 October 2023, page 2.

<sup>37</sup> Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024).

## 2. Analysis of CSDs

### Prevalence of CSDs

- 2.1 In this section, we consider the prevalence of CSDs. This provides an indication of the size of the segment that could be affected by these agreements and whether this is material enough for any concern to arise.
- 2.2 In relation to the prevalence of CSDs, we set out below:
- (a) cloud providers' views on the prevalence of CSDs; and
  - (b) evidence from data on AWS' and Microsoft's CSDs.

### *Relevant cloud providers' views*

- 2.3 [X] said that the 'market coverage' of its discounts was too small to raise concerns. It estimated that individually negotiated discounts represented only around [X]% of cloud infrastructure spend in the UK, as defined by Ofcom.<sup>38</sup>
- 2.4 In restricting its estimate of market coverage to only include individually negotiated discounts, [X] estimate excludes discounts which follow a '[X]'. [X] said that discounts which follow a [X] account for approximately [X]% of contracts/committed spend.<sup>39</sup>

### *Our assessment*

- 2.5 We have assessed and continue to assess evidence to test the submissions above, some of which is discussed in this working paper.
- 2.6 We note two issues with these submissions:
- (a) First, we do not think it is appropriate to include only individually negotiated discounts, as individual negotiation is not a necessary condition for a CSD to be harmful to competition;
  - (b) Second, [X] submitted that [X] are generally negotiated by the [X], as opposed to what [X] defines as '[X]', which are negotiated by both [X] and [X].<sup>40</sup> We understand this means that [X] are in any event subject to individual negotiation. It is therefore unclear on what basis [X] have been excluded from [X] estimate of the market coverage of its discounts.

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<sup>38</sup> [X]; See also [X].

<sup>39</sup> [X] defined [X] as CSDs in which [X] offers the same level of cross-service discount to customers that commit to a similar spend over the same period of time. [X] submissions.

<sup>40</sup>[X] response to the CMA's information request [X].

- 2.7 In addition, [X] estimate of 'market coverage' is calculated as a proportion of the cloud infrastructure spend of all suppliers, but only considers [X] discounts when estimating market coverage. To the extent [X] seeks to show that CSDs have limited coverage of the market in general, then the CSDs of rivals are also relevant and should be included in the calculation. Alternatively, to the extent [X] seeks to show that [X] itself applies CSDs only to a small proportion of its own sales, it should be calculated as a share of [X] sales.
- 2.8 Based on other estimates provided by [X], the spend commitments of [X] customers for [X] CSDs covered around [X] of [X] revenues in 2022.<sup>41</sup> This estimate may still underestimate the prevalence of CSDs within [X] business for several reasons.
- (a) To the extent that customers exceed their commitment (eg to the extent individual projects cannot practically be subdivided so that they meet the target exactly), the excess spend may also have been influenced by the CSD. Any such spend is not included in [X] estimate.
  - (b) [X] submitted that this estimate does not include UK customers whose non-UK parent entity holds a [X] with [X] and does not include [X].<sup>42</sup> Therefore, we consider that some relevant CSD agreements, and therefore commitments, may be missing from the dataset. In particular, we understand that where a CSD is not held by the UK part of the business, the UK revenues from these customers would be counted in [X] total UK revenues (the denominator) but would be excluded from the UK revenues that are subject to CSDs (the numerator).
  - (c) We understand that this estimate is expressed as a proportion of spend on all services including some services that may not be eligible for [X] CSDs. We consider it may be appropriate to remove spend on these services from the total revenues in the calculations as it is not relevant spend for the purpose of [X] analysis.

### **Data analysis**

- 2.9 We assessed the prevalence of CSDs using two metrics for each of AWS and Microsoft:
- (a) The proportion of customers that have a CSD in place (number of customers with a CSD divided by the total number of customers); and

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<sup>41</sup> [X] estimates \$[X] of spend on [X] cloud infrastructure services, of which \$[X] of spend on [X] services under CSDs. Therefore  $\frac{\$[X]}{[X]} = [X] \%$ . [X].

<sup>42</sup> [X]



(b) The proportion of total annual public cloud spend these customers represent (total public cloud spend by customers with a CSD divided by total public cloud spend by all customers).

- 2.10 We calculated these metrics using data provided by AWS and Microsoft.<sup>43</sup> We note that this data reflects providers' estimates that are inevitably affected by the complexity of identifying UK customers and the revenue associated with these.<sup>44</sup>
- 2.11 We found that the proportion of total annual cloud spend which customers with a CSD represented in 2022 was [X]% for AWS and [X]% for Microsoft.
- 2.12 Both of those figures have grown substantially over the years – from [X]% in 2018 to [X]% in 2022 for AWS, and from [X]% in 2019 to [X]% in 2022 for Microsoft.
- 2.13 Given AWS and Microsoft had a combined revenue share of supply in IaaS and PaaS in the UK of [X] % in 2022, this means their CSDs covered a significant proportion of total annual cloud spend in that year.
- 2.14 These figures represented a very small proportion of the number of customers in 2022 ([X]% for AWS and [X]% for Microsoft). This is mainly driven by the large number of smaller customers (ie those spending less than \$500,000 yearly)<sup>45</sup>, that account for around [X]% of total customer base for AWS and for around [X]% for Microsoft.
- 2.15 When looking at customers in higher spend bands, the proportion of customers with CSDs is much higher. For example, in 2022, [X]% customers spending more than \$500,000 per year with AWS had a CSD in place. The equivalent figure was [X]% for Microsoft.

### ***Emerging views on the prevalence of CSDs***

- 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.

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<sup>43</sup> Responses to the CMA's information requests [X].

<sup>44</sup> [X] highlights that the UK customer numbers provided only take into account [X] directly entered into with UK Customers and so do not take into account solution providers that resell and deliver [X] services directly to end customers as part of their other products and services. Such solution providers may choose to sign a [X] with [X] and enter into separate agreements with its end customers, and those separate agreements (and not the [X] between [X] and the [X]) will ultimately govern the discount that any UK-based end customer receives (see response to the CMA's information request [X]). [X] points out that UK customer counts may not always reflect actual figures as some customers have multiple IDs for different departments, which are not tracked in their data systems (see response to the CMA's information request [X]).

<sup>45</sup> As set out in the Competitive landscape working paper, there are a relatively small number of high-spend customers responsible for a significant proportion of providers' UK revenue and a relatively large number of low-spend customers responsible for a small proportion of their revenue.

2.17 We consider that this evidence is consistent with a high and growing commercial relevance of customers with CSDs to AWS and Microsoft, and with CSDs being common at the market level (when looking at corresponding revenues) and at certain customer segment levels (among large customers).

## **Impact of CSDs on customers' choices**

2.18 We consider the extent to which CSDs affect customers' choices in relation to the allocation of workloads on public cloud. If these agreements play a limited role in customers' choices of where to allocate workloads, then they would be less likely to harm competition.

2.19 In order to examine the impact of CSDs on customers' choices, we consider:

- (a) Microsoft's views on the impact of CSDs on customers' choices;<sup>46</sup> and
- (b) customer views on the impact of CSDs on their allocation of workloads.

### ***Microsoft's views***

2.20 Microsoft said that if customers do not like their committed spend level, they are free to switch to another provider, and that evidence from customer research available to Microsoft shows that respondents to that customer research multi-cloud even when they have a CSD with Microsoft.<sup>47</sup>

### ***Our assessment***

2.21 We consider that even if customers are able to switch to other providers, CSDs may still have an impact on customer decisions on workload allocation by affecting customer incentives to place workloads with rivals, which is part of our assessment. Moreover, this section focuses on whether CSDs influence customers' choices, not whether customers are satisfied with the CSDs they get offered and/or agree to.

2.22 We consider that CSDs might have an impact on customers' choices even if some customers do multi-cloud. For example, let us assume a customer has a commitment with a cloud provider covering 90% of the customer's total demand, and allocates the remaining 10% of total demand to another cloud. The very decision to enter into a commitment for 90% of its demand and to leave only 10% of its demand to another cloud (eg rather than 20%) might still have been influenced by the CSD. Similarly, in order to meet its commitment, that customer might end up spending more than 90% of its total demand with its main provider,

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<sup>46</sup> We have not identified any submissions from AWS which address the impact of CSDs on customer choices specifically.

<sup>47</sup> [Microsoft's response to the Issues Statement](#), 17 October 2023, paragraph 49.

thereby exceeding the commitment. That might be the case, for example, because some of this demand cannot be easily and quickly split between the two cloud providers and, in order not to risk missing the commitment, the customer might decide to allocate the demand that cannot be split to its main provider. In that scenario, the customer behaviour would have also been influenced by the CSD.

### ***Customer evidence***

- 2.23 We asked large customers for their views on whether their decisions on switching and the allocation of workloads would be affected by CSDs. We looked in turn at:
- (a) The impact of CSDs on the allocation of new workloads; and
  - (b) The impact of CSDs on the allocation of existing workloads.
- 2.24 Customers answering these questions all had AWS or Microsoft as their main provider.

### ***New workloads***

- 2.25 We asked large UK customers about the allocation of their new workloads. First, we asked customers to which public cloud provider(s) they would most likely allocate new workloads in the future and why.
- 2.26 The responses to this question are useful to understand the broader reasons why these customers would choose a specific provider for any new workload. They also set the context for assessing the subsequent questions on the extent to which CSDs have any impact on such choices relative to other reasons.
- 2.27 Overall, most customers said they would likely allocate new workloads to Microsoft, AWS or Google. In contrast, only a few customers would allocate new workloads to any of the other providers.<sup>48</sup> Some customers we spoke to identified more than one cloud provider in responding to this question.
- 2.28 A handful of customers responding to this question explicitly gave the reasons for choosing either Microsoft or AWS as being the presence of a CSD or commitment.<sup>49</sup> This was also a reason given by a few customers for choosing Google.<sup>50</sup>
- 2.29 Other reasons given for choosing Microsoft included its geographic reach,<sup>51</sup> pace of technical advancements; integration with Microsoft 365; and use by end-

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<sup>48</sup> Responses to the CMA's information requests [redacted].

<sup>49</sup> Responses to the CMA's information requests [redacted].

<sup>50</sup> Responses to the CMA's information requests [redacted].

<sup>51</sup> [redacted] response to the CMA's information request [redacted].

customers.<sup>52</sup> Other reasons given for AWS included having the skills needed to quickly deploy to AWS.<sup>53</sup> Other reasons given for choosing Google included its data and analytics tools being the most suitable for the customer's needs.<sup>54</sup>

- 2.30 These results are broadly consistent with customer views on which providers are 'suitable alternatives' to their main provider, as set out in the Competitive landscape working paper.
- 2.31 Second, we asked large UK customers explicitly whether CSDs offered by their main cloud providers would influence the allocation of new workloads in the future. The customers had to choose one option on a scale from 'very unlikely' to 'very likely'.
- 2.32 In response to this question most customers we spoke to said that the existence of any CSDs with their main cloud provider was somewhat likely or very likely to have an impact on their choice of where to allocate new workloads.
- (a) Reasons given for choosing 'very likely' included being financially incentivised to meet the contractual commitments as well as growing usage with the provider (AWS in this case) to get a larger discount at renewal,<sup>55</sup> and that allocating workloads/spend with a new provider may reduce the committed spend discounts with the main provider.<sup>56</sup>
- (b) Reasons given for choosing 'somewhat likely' included that CSDs are an important consideration but not the only consideration when deciding where to allocate workloads.<sup>57</sup>
- 2.33 A handful of customers said it is neither likely nor unlikely whilst a few customers said it is somewhat unlikely or very unlikely that their choice of new workload is impacted by existence of CSDs with their main cloud provider.<sup>58</sup>
- (a) Reasons given for choosing 'neither likely nor unlikely' included that alternative providers offer similar discount structures,<sup>59</sup> and that if the commitment is comfortably met, allocating new workloads to another provider is not an issue.<sup>60</sup> We note that this latter reason implies that the CSD may have had an influence on the placement of demand below the commitment level.

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<sup>52</sup> [redacted] response to the CMA's information request [redacted].

<sup>53</sup> [redacted] response to the CMA's information request [redacted].

<sup>54</sup> [redacted] response to the CMA's information request [redacted].

<sup>55</sup> [redacted] response to the CMA's information request [redacted].

<sup>56</sup> [redacted] response to the CMA's information request [redacted].

<sup>57</sup> Responses to the CMA's information requests [redacted].

<sup>58</sup> Responses to the CMA's information requests [redacted].

<sup>59</sup> [redacted] response to the CMA's information request [redacted].

<sup>60</sup> [redacted] response to the CMA's information request [redacted].

(b) Reasons given for choosing ‘somewhat unlikely’ or ‘very unlikely’ included AWS and Azure offering similar CSDs,<sup>61</sup> and that allocation of new workloads depends mainly on procurement evaluation criteria.<sup>62</sup>

- 2.34 Third, we asked large customers whether CSDs offered by any other providers that the customers use (ie besides their main cloud provider) would influence such allocation. The customers had to choose one option on a scale from ‘very unlikely’ to ‘very likely’.
- 2.35 In response to this question, most customers we spoke to said that the existence of any CSDs offered by providers other than their main cloud provider is somewhat likely or very likely to influence their decision on where to allocate new workloads.
- 2.36 A handful of customers said that it is neither likely nor unlikely and another handful of customers said it is somewhat unlikely or very unlikely that their choice of new workload is impacted by the existence of CSDs with providers other than their main cloud provider.<sup>63</sup>
- 2.37 Generally, the reasons given for these choices were very similar, if not the same, to the ones given for the impact of the main provider’s CSDs on allocation of new workloads. The most notable difference being how the impact of CSDs from other providers may be lower because of the lower spend/usage on these other providers.<sup>64</sup>

### *Existing workloads*

- 2.38 We also asked large customers about the effects of CSDs on the allocation of existing workloads. We asked customers whether CSDs offered by their main cloud providers would influence their approach to switching workloads from their main providers to other providers, in the event they wanted to switch any such workloads. The customers had to choose one option on a scale from ‘very unlikely’ to ‘very likely’.
- 2.39 Most customers we spoke to said that it was somewhat likely or very likely that the existence of any CSDs with their main public cloud provider would influence moving existing workloads away from their main public cloud provider.
- (a) Reasons given for choosing ‘very likely’ included the customer being restricted in switching workloads to an alternative provider by existing spend commitment with the existing provider – this would make it unfeasible to reduce consumption on the existing provider overnight and would require

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<sup>61</sup> [redacted] response to the CMA’s information request [redacted].

<sup>62</sup> [redacted] response to the CMA’s information request [redacted].

<sup>63</sup> Responses to the CMA’s information requests [redacted].

<sup>64</sup> Responses to the CMA’s information requests [redacted].

incentive to reduce the migration costs from the alternative provider.<sup>65</sup> Another reason was that moving workloads from a provider with which the customer has a committed spend discount would lead to higher costs for the customer and would need to be offset by a material discount from the alternative provider.<sup>66</sup>

- (b) Reasons given for choosing somewhat likely focused on considering committed spend discount in addition to all other related costs including cost of migration,<sup>67</sup> and product integration being a more relevant consideration when switching workloads.<sup>68</sup>

2.40 A handful of customers said that existence of CSDs with their main provider would be neither likely nor unlikely to influence this decision, whilst a few customers said that it would be somewhat unlikely or very unlikely to influence this decision.<sup>69</sup>

- (a) Reasons given for choosing neither likely nor unlikely focused on discounts and financial incentive on switching that can be offered by alternative providers to mitigate any lost discount with the existing provider,<sup>70</sup> and product integration being more important than committed spend discount when switching.<sup>71</sup>
- (b) Reasons given for choosing very unlikely and somewhat unlikely focused on considering costs and risks of switching in the round<sup>72</sup> and technical fit of the alternative provider being more important than committed spend discounts when switching.<sup>73</sup>

### *Evidence from the Jigsaw report*

2.41 The Jigsaw report suggests that there are two main ways in which discounts, including CSDs, have at least some impact on cloud customer behaviour:

- (a) Firstly, participants say it does influence propensity to stay with their current provider – at least to some extent;
- (b) Secondly, there is evidence from across the sample that the existence of behaviour-based discounts influences how companies actually use the services offered by their cloud provider. In particular, some research participants describe how their companies use certain cloud services, not

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<sup>65</sup> [redacted] response to the CMA's information request [redacted].

<sup>66</sup> [redacted] response to the CMA's information request [redacted].

<sup>67</sup> Responses to the CMA's information requests [redacted].

<sup>68</sup> [redacted] response to the CMA's information request [redacted].

<sup>69</sup> Responses to the CMA's information requests [redacted].

<sup>70</sup> [redacted] response to the CMA's information request [redacted].

<sup>71</sup> [redacted] response to the CMA's information request [redacted].

<sup>72</sup> [redacted] response to the CMA's information request [redacted].

<sup>73</sup> [redacted] response to the CMA's information request [redacted].

because there is a business or an IT need, but for the sole purpose of meeting committed spend targets. Other participants speak of migrating more workloads than they might otherwise need to, simply in order to meet committed spend targets.<sup>74</sup>

### ***Emerging views on the impact of CSDs on customers' choices***

2.42 The evidence reviewed so far indicates that:

- (a) Many customers we spoke to are impacted by AWS or Microsoft CSDs in deciding where to allocate new workloads and/or on the approach to moving existing workloads from their main provider.
- (b) Many customers are impacted by CSDs they have with providers other than their main provider in deciding where to allocate new workloads. We consider this is likely to be customers who multi-cloud between AWS, Microsoft, and possibly Google – that is supported by our analysis of customer spend by provider which showed that only a small proportion of the spend of customers was on providers besides these three.<sup>75</sup>
- (c) Customers are likely to allocate new workloads only to AWS, Microsoft and Google. Again, we consider this is in line with the analysis of respondents' characteristics which showed the vast majority of their cloud spend being allocated to these three providers (even if to a much lesser extent to Google).
- (d) Discounts, including CSDs, offered by cloud providers influence to some extent the propensity of customers to stay with their current provider and lead customers to spend more than they would if they did not have to meet the spend commitment.

### **Impact of CSD pricing structure on competition**

2.43 In this section, we:

- (a) set out relevant submissions made by cloud providers in relation to the impact of CSDs on competition;
- (b) consider evidence relating to the factors set out at paragraph 1.20(c) above, namely:
  - (i) the share of demand that is sticky;

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<sup>74</sup> Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024).

<sup>75</sup> Responses to the CMA's information requests [3<].

- (ii) the proportion of customers' demand covered by their commitments;  
and
  - (iii) the discount rate; and
- (c) consider some factors not directly related to the structure of CSDs but which are relevant to their potential to harm competition, including the length of CSD contracts and the existence of barriers to entry and expansion.

### **Relevant cloud providers' views**

2.44 Microsoft said that:

- (a) Its CSDs are not designed or imposed to capture the entirety of a customer's demand across the cloud and this is consistent with many customers having a preference for multi-cloud.<sup>76</sup>
- (b) Customers themselves have flexibility to determine their committed spend targets based on their expected workflow and to determine the contract length.<sup>77</sup>
- (c) It does not recognise, from its own interaction from customers, Ofcom's concern regarding larger providers using commercial pressure to influence its customers to increase their commitments over subsequent contract negotiations. [redacted].<sup>78</sup>
- (d) Over time, the value of discounts in percentage terms that Azure customers received has [redacted]. Microsoft also said that its regression analysis of UK CSD contracts shows that contract discounts do not decrease with contract renewal.<sup>79</sup>

2.45 We have assessed and continue to assess evidence to test the submissions above, some of which is discussed in this working paper. At the outset, our initial view on the points above in turn is:

- (a) A CSD could lead to harm to competition even if it does not capture the entirety of customer demand. For example, if a customer's commitment covered 90% of its demand, the customer may have 10% of spend over which it can exercise effective choice. However, the CSD in this situation may have had an influence over, and thus reduced competition in relation to, a significant proportion of that customer's demand.

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<sup>76</sup> [Microsoft response to the CMA Issues Statement](#), 17 October 2023, paragraph 49.

<sup>77</sup> [Microsoft response to the CMA Issues Statement](#), 17 October 2023, paragraph 49.

<sup>78</sup> Microsoft submission [redacted].

<sup>79</sup> Microsoft submission [redacted].



- (b) Even if customers have flexibility to determine their committed spend and contract length, they might still be deterred from considering alternative suppliers for their contestable demand due to the prospect of paying a higher price for the sticky demand, depending on the discount rate offered for different commitment/length options.
- (c) It is not necessary for customers to feel ‘pressure’ in negotiating a CSD for a concern to arise (though such pressure would be consistent with a concern).
- (d) [REDACTED]
- (e) We have not assessed as part of this working paper the extent to which effective prices have increased, decreased, or remained stable over time. [REDACTED], any impact of CSDs on competition may not be observed in the short run, and there would likely be several other factors that might have affected prices and margins alongside CSDs. The same line of reasoning also applies to whether customers receive higher or lower discounts at renewal.

2.46 AWS made the following points, which it said are inconsistent with customers being harmed due to alleged customer lock-in or alleged rival foreclosure:

- (a) [REDACTED].<sup>80</sup>
- (b) [REDACTED].<sup>81</sup>
- (c) The structure and level of AWS’ discounts is such that efficient rivals can compete on incremental demand.<sup>82</sup>
- (d) AWS services are not a “must-have” (ie unique to AWS), and therefore cannot be leveraged to foreclose competitors.<sup>83</sup>
- (e) There is a large body of evidence of entry and growth by many rivals of all sizes.<sup>84</sup>
- (f) Market outcomes (repeated innovation, higher quality of services, decreasing prices, decreasing margins, and efficiencies passed on to customers) are consistent with effective competition.<sup>85</sup>

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<sup>80</sup> AWS’ submission [REDACTED].

<sup>81</sup> AWS’ submission [REDACTED].

<sup>82</sup> AWS’ submissions [REDACTED].

<sup>83</sup> [REDACTED] response to the CMA’s information request [REDACTED].

<sup>84</sup> [REDACTED] response to the CMA’s information request [REDACTED].

<sup>85</sup> [REDACTED] response to the CMA’s information request [REDACTED].

- 2.47 We have assessed and continue to assess the submissions above, some of which is discussed in this working paper and some in the Competitive landscape working paper. At the outset, we make the following observations:
- (a) We set out our approach to assessing whether effective prices have increased, decreased, or remained stable over time at paragraph 2.45(e) above. The same line of reasoning applies here in responses to the point raised by AWS at paragraph 2.46(a).
  - (b) We consider that it is relevant to assess the structure and level of AWS' discounts and the impact that these might have on rivals' ability and incentive to compete. We have assessed and continue to assess these as part of our framework. We understand that AWS' submission that efficient rivals can compete on incremental demand is based on [redacted]. We discuss this and address our view of its limitations as a basis for such an analysis in paragraphs 2.86 to 2.90.
  - (c) We are not considering whether services from AWS are a 'must-have', as we do not consider that is the right benchmark. We are instead assessing if customers already using AWS cloud services would switch away their existing demand – this might be influenced by barriers to switching even if rivals are able to supply equivalent services to AWS.
  - (d) Irrespective of whether there has been some entry and growth by rivals, our analysis indicates that there is concentration in the supply of public cloud infrastructure services in the UK and that between 2019 and 2022 that concentration has increased.
- 2.48 We also asked smaller cloud providers<sup>86</sup> to explain whether CSDs offered by larger cloud providers have had any impact on their business and to provide any supporting evidence.
- 2.49 One of these providers submitted examples of how CSDs offered by larger cloud providers have had an impact on its business.<sup>87</sup> We are continuing to assess this evidence.<sup>88</sup>

### ***Share of demand that is sticky***

- 2.50 CSDs are likely to have a more harmful effect on competition if providers offering them benefit from a larger share of sticky demand relative to contestable demand, ie larger proportion of demand over which the customer cannot exercise effective choice. This is influenced by the balance of bargaining power between providers

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<sup>86</sup> [redacted].

<sup>87</sup> [redacted].

<sup>88</sup> [redacted] response to the CMA's information request [redacted].

and customers; in particular, the availability of credible alternative options to customers and the presence of barriers to switching/multi-cloud.

- 2.51 Other things being equal, the higher the share of sticky demand for AWS and/or Microsoft's cloud services, the more difficult and less attractive it would be for rivals to match the discount given by AWS and/or Microsoft's CSDs. That is because the extra discount that rivals would need to apply to the contestable part of demand becomes proportionally higher.
- 2.52 For example, a customer has 1000 units of demand with a cloud provider which are sticky, and 30 which are contestable, and that customer has a CSD with that provider giving a 2% discount with a commitment of 1030 units. In this scenario, all else equal, a rival would have to apply a discount of around 69% to win the 30 contestable units.<sup>89</sup> If instead the customer had 100 units of demand with that cloud provider which are sticky, all else equal, the rival would have to apply a discount of around 9% to win the 30 contestable units.<sup>90</sup>
- 2.53 First, we note the interaction of CSDs with other potential barriers to switching and multi-cloud that we are considering as part of our other working papers. We then discuss some additional customer evidence on the share of sticky demand for AWS and Microsoft for a group of large customers.

#### *Evidence from other working papers*

- 2.54 The analysis of the presence of any other barriers to switching and multi-cloud is key to the analysis of the share of sticky demand. We expect to consider evidence on barriers to switching and multi-cloud from factors such as technical differentiation between clouds and latency in a later working paper. In the Egress fees working paper, we also consider evidence on how the additional costs for customers brought about by the presence of egress fees can act as barrier to switching and multi-cloud. We expect to assess evidence on barriers to switching and multi-cloud from software licensing practices in a later working paper.
- 2.55 The Jigsaw report notes that few of the customers interviewed had chosen to switch between public cloud providers. It notes that, overall, switching not only brought cost and operational risk, but took IT staff away from the customer's core work and typically ended up being more challenging and time consuming than anticipated. The report also notes that switching cloud providers is seen as the equivalent of moving other kinds of infrastructure, such as 'moving house' or moving a business from one country to another. It is not something to undertake

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<sup>89</sup>  $(0.02 \times 1030) / 30 \sim 0.69$ .

<sup>90</sup>  $(0.02 \times 130) / 30 \sim 0.09$ .

lightly or consider at all unless it leads to significant business benefits long term that override the inherent cost and risk of changing.<sup>91</sup>

- 2.56 The higher any barriers to switching and multi-cloud, the higher the share of sticky demand for AWS' and Microsoft's cloud services. Therefore, finding high barriers to switching and multi-cloud in that assessment would strongly suggest that the share of sticky demand is high. Any additional evidence, such as the customer evidence discussed below, should be seen in that context.

### *Customer evidence*

- 2.57 We asked large customers to list any cloud services they were getting from their main cloud provider which they would not be willing to switch to alternative providers, including the proportion of spend that these services accounted for.
- 2.58 This evidence gives an indication of the share of sticky demand for AWS or Microsoft cloud services for this group of customers. We will consider this evidence in the round and alongside other evidence received and discussed above.
- 2.59 Based on our analysis of these responses,<sup>92</sup> one customer we spoke to said that it would not be willing to switch any of its demand placed with AWS to alternative providers.<sup>93</sup> A handful of customers said that they would not be willing to switch a proportion of their AWS demand, ranging from 20-66%. Finally, a few customers said that they were willing to switch all of their AWS demand.
- 2.60 Based on our analysis, most customers said that they would not be willing to switch any or virtually any of their demand placed with Microsoft. One customer said that it would be unwilling to switch 25% of its demand<sup>94</sup> and a few customers said that they were willing to switch all or virtually all of their Microsoft demand.<sup>95</sup>
- 2.61 We asked other customers a very similar question. In response:
- (a) Many customers we spoke to said it was possible to switch away at least some services from their main provider to alternative providers.
  - (b) Many customers, including some who said that switching was possible, said that any such switching would be expensive.

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<sup>91</sup> Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024).

<sup>92</sup> Responses to the CMA's information requests [redacted].

<sup>93</sup> [redacted] response to the CMA's information request [redacted].

<sup>94</sup> [redacted] response to the CMA's information request [redacted].

<sup>95</sup> Responses to the CMA's information requests [redacted].

(c) A handful of other customers suggested decisions on allocation of workloads are on a per service basis and consider a range of factors including the quality of the services, the business needs, and current capabilities.<sup>96</sup>

2.62 Most customers did not include a proportion of spend for services they would not be willing to switch. Among customers that did, one customer said that it would not be willing to switch any or virtually any of its demand placed with its main provider (such that all of its demand was sticky).<sup>97</sup>

2.63 A handful of customers said that they would not be willing to switch a proportion of their main provider demand, ie that a proportion of their demand was sticky – a few of these customers said they would not be willing to switch between 50-93% (such that most of their demand was sticky) and a few said between 5-25% (such that less than half of their demand was sticky).

2.64 Finally, a handful of other customers said they were willing to switch all or virtually all of their demand from their main provider.<sup>98</sup>

### ***Proportion of customers' demand covered by commitments***

2.65 All else equal, if the spend commitments from CSDs cover a small proportion of what the customer intends to spend overall, then rivals may be able to compete for the remaining portion of demand as normal. However, if the commitments leave very little demand, the CSDs will have the scope to have an impact on a greater proportion of contestable demand. The extent to which commitments approximate total demand may be greater to the extent providers are able to tailor the terms of the CSDs to the circumstances of specific customers.

2.66 We break down the assessment of this factor by looking at:

(a) The extent to which AWS and Microsoft have the ability to cover much of their customers' demand with their CSDs, eg because they hold individual information about the customers. Evidence on this has come from customer responses to our CSD questionnaire as well as from AWS' and Microsoft's internal documents.

(b) The extent to which AWS and Microsoft seek to cover much of their customers' demand with their CSDs during CSD negotiations. Evidence from this has come from customer responses to our CSD questionnaire as well as from AWS' and Microsoft's internal documents.

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<sup>96</sup> Responses to the CMA's information requests [redacted].

<sup>97</sup> [redacted] response to the CMA's information request [redacted].

<sup>98</sup> Responses to the CMA's information requests [redacted].

- (c) The extent to which customers' demand for AWS and Microsoft cloud services is covered by AWS and Microsoft CSDs in practice. Evidence from this has come from data on CSD agreements provided by AWS and Microsoft.

2.67 We also looked at the extent to which the commitment/discount rate in each agreement is bespoke to the customer, ie whether customers committing similar levels of spend receive different discount rates. While this analysis does not directly address the question of whether commitments cover much of customers' total demand, it provides helpful context to understand the extent to which CSDs are bespoke or standardised. Evidence from this has come from data on CSD agreements provided by AWS and Microsoft.

### *Customer evidence*

2.68 We asked large customers what terms, if any, were proposed by their public cloud providers as part of CSD negotiations. For example, whether they were asked to: provide their growth plans for their cloud spend; increase the size of the spend commitment or the length of their contract; or commit to grow their cloud spend by adopting more services from that provider.<sup>99</sup>

2.69 Based on customer responses, the most common items that were highlighted by customers were increases in length of the CSD contract and increase in committed spend.

- (a) Multiple customers said that during their last negotiations either AWS or Microsoft had sought an increase in the committed spend. For example, one customer said that, during its last negotiations with AWS or Microsoft, increases in the committed spend were required to continue or improve discounts offered. However, that customer said it is not always clear what benefits the higher spend commitment provides beyond fixed percentage discounts.<sup>100</sup> A few other customers noted that increasing committed spend at some point during the contract period was put in the contract as an optional way for the customer to get a higher discount later on.<sup>101</sup>
- (b) Multiple customers said that increased length of their CSD (and therefore commitment) was a term they negotiated on and that they were offered higher discounts if they increased the length of their commitment.<sup>102</sup>

2.70 A handful of customers also said that their growth plans were shared with cloud providers when considering or negotiating CSDs with some cloud providers. These

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<sup>99</sup> [REDACTED].

<sup>100</sup> [REDACTED] response to the CMA's information request [REDACTED].

<sup>101</sup> Responses to the CMA's information requests [REDACTED].

<sup>102</sup> Responses to the CMA's information requests [REDACTED].

included plans to grow cloud spend<sup>103</sup> and volume projections over multiple years.<sup>104</sup> We understand these plans were an input into the determination of the customer's spend commitment.

### *Internal documents*

2.71 We reviewed internal documents produced by AWS and Microsoft in relation to negotiations of CSDs with eight customers (four per provider). We will continue to review the information provided so that we can assess it in the round with other evidence on CSDs.<sup>105, 106</sup>

### *Data analysis*

2.72 We have analysed the extent to which customers' demand for AWS and Microsoft cloud services is covered by spend commitments with AWS and Microsoft as well as the extent to which the commitment level/discount rate in each agreement is bespoke to the customer.<sup>107</sup>

### ***Eligible spend vs commitment***

2.73 We looked at the ratio of total eligible spend (ie spend that counts towards the CSD commitment) to total CSD commitment for all completed AWS and Microsoft CSDs in the period 2017-2023.<sup>108</sup>

2.74 CSDs for which this ratio is smaller than one are those whereby the customer has not met the commitment within the relevant period. CSDs for which this ratio is greater than one are those whereby the customer has exceeded the commitment. For CSDs with a ratio greater than or equal to one, the closer this ratio is to one, the greater the proportion of that customer's total demand on that specific provider (AWS or Microsoft) that is covered by the commitment.

2.75 This analysis does not take into account the potential for customers to have some spend on cloud services, and potentially another CSD, with alternative cloud providers other than the provider being analysed (ie other than just either AWS or Microsoft). The implication is that customers may have more spend (but may also

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<sup>103</sup> [redacted] response to the CMA's information request [redacted].

<sup>104</sup> [redacted] response to the CMA's information request [redacted].

<sup>105</sup> Responses to the CMA's information requests [redacted].

<sup>106</sup> [redacted] response to the CMA's information request [redacted]. [redacted]. [redacted] response to the CMA's information request [redacted].

<sup>107</sup> Responses to the CMA's information requests [redacted].

<sup>108</sup> Responses to the CMA's information requests [redacted].

have more commitment) overall than the level observed in a single dataset that relates to just one provider.<sup>109</sup>

2.76 We continue to assess this evidence and will consider it in the round alongside other data.

*AWS*

2.77 Figure 2.1 below shows [REDACTED]

**Figure 2.1 [REDACTED]**

[REDACTED]

*Microsoft*

2.78 We produced a corresponding [REDACTED]<sup>110</sup> [REDACTED]

2.79 Figure 2.2 below shows [REDACTED]

**Figure 2.2 – [REDACTED]**

[REDACTED]

### ***Bespoke nature of CSDs***

2.80 We have looked at the relationship between commitment and discount rate for AWS and Microsoft CSDs.<sup>111</sup> This may provide useful information on the extent to which these CSDs are bespoke to the customer, ie whether customers committing to similar levels of spend receive different discount rates.

2.81 We continue to assess this evidence and will consider it in the round alongside other data.

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<sup>109</sup> For example, an AWS customer with a commitment with AWS of \$1m and total eligible spend of \$1m would have a ratio of commitment to eligible spend on AWS equal to 1. In this case, this customer's commitment equals its demand from AWS. However, if the same customer also spent \$1m on another cloud provider which is not under commitment, that customer's total demand would be \$2m. If that customer also had an additional commitment of \$1m with the other provider, then its total demand would be covered by commitments.

<sup>110</sup> Total commitment figures were missing on [REDACTED] out of [REDACTED] total observations in the original dataset. Additionally, as noted in Microsoft's response to the CMA's information request [REDACTED], eligible spend is not systematically recorded in Microsoft's data systems, therefore such information in many cases had to be retrieved through manual checks. Agreed discount rate and length of CSD contract were also missing on several observations.

<sup>111</sup> Responses to the CMA's information requests [REDACTED].



## ***Discount rate***

- 2.82 All else equal and for a given share of sticky demand, larger discount rates in CSD agreements make customers less willing to split their demand across suppliers (because they would face a higher price on their sticky demand if they did so). Similarly, larger discount rates would make it easier for relevant providers to leverage their strong position over the sticky demand into the contestable demand – this is because larger discount rates would be more difficult for rival providers to match over the contestable demand.
- 2.83 Evidence on discount rates cannot be interpreted on its own, and should be looked at together with the share of demand that is sticky and the proportion of customer demand which is covered by the commitment, as these will affect the effective discount that rivals will have to apply on just the contestable demand.
- 2.84 In our assessment, we looked at the incremental discount that customers get when renewing their AWS and Microsoft CSDs and compared that with the incremental commitment they sign up to.<sup>112</sup> We break down the analysis by looking at CSDs renewed once and twice.
- 2.85 We looked at renewals as those are situations where a customer could in principle consider alternative providers for some of its demand as its current CSD contract is coming to an end. Therefore, while there might be other barriers preventing a customer from actually switching or doing multi-cloud, CSD renewals are a good example of a moment in time when rivals could in principle compete for such contestable demand.
- 2.86 We focus on the incremental discount, as opposed to the total discount, because this is the element of the discount rate that is affected by the CSD structure, ie the creation of a link between sticky and contestable demand. The incremental discount is what the rival needs to add to any existing discount in order to compete for the contestable demand of the customer at the CSD renewal stage. For a given share of sticky demand relative to contestable demand for a customer, the higher the incremental discount from the renewed CSD and/or the lower the commitment growth at renewal, the higher the discount rate that the rival needs to apply in order to win the contestable demand of that customer that is covered by the new commitment.<sup>113</sup>
- 2.87 For example, let us assume that a customer has an existing CSD with an incumbent provider with a commitment covering the whole of the customer's existing demand. Let us also assume that this customer is about to renew its CSD

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<sup>112</sup> Responses to the CMA's information requests [3<].

<sup>113</sup> The contestable demand in this scenario may be a portion of the incremental commitment. The size of this portion will depend on how much existing demand, which is more likely to be sticky, is covered by the incremental commitment as opposed to future demand which has not been placed yet.

by agreeing the following changes to its contract: a 1% incremental discount and a 50% increase in the commitment. Let us also assume that the 50% increase in commitment is all made up of contestable demand, eg demand for future services for which the customer considers multiple providers as viable options. In other words, the customer could decide to allocate this additional demand to these other providers instead of increasing the commitment with the incumbent provider. This means that, in our example, the share of sticky demand for that customer is 67% and the discount rate (in percentage points) that the rival needs to apply to win the contestable demand is 3%, that is three times as much as the incremental discount offered by the incumbent.<sup>114</sup> All else equal:

- (a) If the incremental discount from the CSD was 3% instead, the discount rate (in percentage points) that the rival needs to apply would be 9%.<sup>115</sup>
- (b) If the incremental commitment was 20% instead, the discount rate (in percentage points) that the rival needs to apply would be 6%.<sup>116 117</sup>

2.88 We note that this is our initial analysis of the discount rate. We are considering our approach further as:

- (a) focusing just on the incremental discount (as opposed to the total discount, ie existing plus incremental discount) might underestimate the impact of CSDs on rivals and competition.
- (b) the difference between existing and new discount rate that the customer get at renewal might not be the appropriate benchmark.<sup>118</sup>
- (c) over time, there are likely to be new CSDs (ie not renewed) and we need to consider further how to capture these when there is no clear 'incremental discount' as we just observe the initial agreement.

<sup>114</sup> Share of sticky demand:  $0.67 = 1/(1+50\%)$ ; discount rate that the rival needs to apply:  $3 = 1*(1+50\%)/50\%$ .

<sup>115</sup>  $9 = 3*(1+50\%)/50\%$ .

<sup>116</sup>  $6 = 1*(1+20\%)/20\%$ .

<sup>117</sup> There is another possible change to our assumptions: let us assume that the 50% increase in commitment was instead made up for 25% of contestable demand and 25% of sticky demand – eg because the latter was spend that the customer had already placed on the incumbent and was not considering moving. In this scenario, we would have the following if we assume a 1% incremental discount as per the base case example: the share of sticky demand for that customer would be 83% ( $1.25/(1+0.5)$ ) and the discount rate (in percentage points) that the rival needs to apply to win the contestable demand would be 6% ( $1*(1.25+25\%)/25\%$ ).

<sup>118</sup> For example, if a customer agreed to an increase in commitment but its discount (say, 10%) did not change, the incremental discount for that customer at renewal would appear as zero in our analysis. However, if for example the customer were offered only two options – same commitment but a reduction in the discount rate (from 10% to say, 8%) vs same discount rate (10%) but increase in commitment – and it picked the latter, then the incremental discount rate for the purpose of our analysis should be 10% minus 8%, ie 2%.

## **AWS**

- 2.89 We have considered the median incremental discount and growth in commitment that customers receive at their first and second CSD renewal with AWS.<sup>119</sup>
- 2.90 Our analysis shows that the median increment in discount rate for this set of AWS CSDs was around [X] percentage points for both first and second renewals.<sup>120</sup> The median commitment growth was around [X]% and [X]% for first and second renewals, respectively.<sup>121</sup>

## **Microsoft**

- 2.91 We have considered the median incremental discount and growth in commitment that customers receive at their first and second CSD renewal with Microsoft.<sup>122</sup>
- 2.92 Our analysis shows that the median increment in discount rate for this set of Microsoft CSDs was around [X] and [X] percentage points for first and second renewals, respectively.<sup>123</sup> The median commitment growth was around [X]% and [X]% for first and second renewals, respectively.<sup>124</sup>
- 2.93 We consider that this analysis – for both AWS and Microsoft – is a useful first step to understand the depth of the discount rate that rivals need to match in order to win contestable demand from AWS and/or Microsoft. In particular, this analysis suggests that increments in discount rate at CSD renewal are material. However, as noted in paragraph 2.83 above and as is clear from the example at paragraph 2.87, these figures cannot be interpreted on their own and should be read in conjunction with other analysis, such as the share of customer demand that is

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<sup>119</sup> We note that we had to exercise some judgment in establishing the exact sequence of original and renewed CSD contracts for some customers with multiple contracts over the observed period. When the start date of a subsequent contract preceded the expected end date of the previous contract, we had to manually inspect the data to exclude a few instances that did not appear to represent genuine early renewals, but rather additional contracts held in parallel with the original one. In those cases when, instead, we observed a long gap between the end of a contract and the commencement of the next one (eg, more than a quarter apart), the customer could have been a returning rather than a renewing one. However, for the purposes of this analysis, we have treated any potentially returning customer as a renewing one rather than a new customer, though in principle the relative bargaining position may have differed in the two scenarios.

<sup>120</sup> Average incremental discount (percentage points) was [X] on first renewal and [X] on second renewal.

<sup>121</sup> Average growth in commitment (percentage) was [X]% on first renewal and [X]% on second renewal.

<sup>122</sup> Our analysis should be interpreted with caution because: (a) the Microsoft dataset had many missing values for total commitment, for total eligible spend, for agreed length of commitment and discount rate (see paragraph 2.820). As a result, we only had complete data on a subset of Microsoft CSDs and it is not clear whether this subset is representative of all Microsoft CSDs; (b) as with AWS CSDs, some judgment was needed in establishing the exact sequence of original and renewed CSD contracts for some customers with multiple contracts over the observed period (see footnote 130); (c) Microsoft does not appear to systematically record in its data systems whether a contract is renewed while it is in progress. Microsoft's response to the CMA's information request [X].

<sup>123</sup> Average incremental discount (percentage points) was [X] on first renewal and [X] on second renewal.

<sup>124</sup> Average growth in commitment (percentage) was [X]% on first renewal and [X]% on second renewal.

sticky. We will continue to assess how to take into account this evidence into our framework.

## **Contextual factors**

### *Length of CSD contracts*

- 2.94 The length of CSD contracts is relevant context for our assessment: to the extent that customers gradually meet their commitment over the course of the contract length, then the longer the contract length the longer the period over which CSDs can impact on customers' choices. However, we note that even if CSD contract lengths are relatively short they can still have a similar impact to longer ones if those CSDs tend to be renewed such that customers have consecutive CSDs covering a similar length of time.
- 2.95 We looked at the distribution of contract lengths for AWS and Microsoft CSDs over time.<sup>125</sup> Specifically we have considered the average, median, minimum and maximum contract lengths for AWS CSDs over the period 2017-2023, by year of contract commencement date and for Microsoft the average, median, minimum and maximum contract lengths for Microsoft CSDs over the period 2018-2023, by year of contract commencement date.
- 2.96 Our analysis shows that:
- (a) AWS CSD contracts vary significantly in length. They range from [0-2] to [6-8] years; and
  - (b) Microsoft CSD contracts also vary significantly in length. They range from [0-2] to [8-10] years.

### *Economies of scale*

- 2.97 It is also important to consider the wider context in which CSDs are being used. Specifically, the existence of any economies of scale and the costs of rival providers. These are assessed in the Competitive landscape working paper.
- 2.98 Economies of scale arise where average costs fall as the level of output rises over a range of output volume.<sup>126</sup> Where economies of scale exist smaller providers will have higher average costs relative to larger providers. Further the higher costs of smaller providers are not necessarily because the smaller providers are inefficient, but, at least in part, arise because they have not reached adequate scale yet.

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<sup>125</sup> See footnote 108 for details on data sources.

<sup>126</sup> [CC3 \(Revised\), Guidelines for market investigations: Their role, procedures, assessment and remedies \(publishing.service.gov.uk\)](#): 212.

- 2.99 The higher any economies of scale, the higher the average costs of smaller providers relative to the larger providers so that smaller providers find it harder to compete in the short term for any given discount level; and CSDs can deny them scale and thus reduce competition in the long term.
- 2.100 High economies of scale might also give larger providers an incentive to use CSDs to prevent smaller providers achieving sufficient scale to compete effectively.
- 2.101 However, we note that the impact of high economies of scale on the incentives of smaller providers depends on the expectations and strategic choices of smaller providers. If smaller providers take a short-term approach, they could earn a higher profit by not competing, but if they take a long-term approach, they may be willing to make lower profits in order to achieve scale and compete more effectively in the long run.

### ***Emerging views on the impact of CSD pricing structure on competition***

- 2.102 We have assessed the evidence so far on the extent to which the structure of CSDs, ie how the link between the sticky and the contestable demand is set up in practice, has characteristics that may cause them to harm competition. In doing so, we looked at:
- (a) The share of demand that is ‘sticky:’ finding high barriers to switching and multi-cloud would strongly suggest that the share of sticky demand is high. The Jigsaw report notes that switching cloud providers is a complex and costly exercise for customers. We have also heard from large customers who view a material portion of their demand on AWS and Microsoft as sticky.
  - (b) The level of customers’ commitments relative to their total demand:
    - (i) Customers highlighted increases in length of the CSD contract and increases in committed spend as terms that were proposed as part of CSD negotiations with AWS or Microsoft.
    - (ii) The internal documents reviewed to date [REDACTED].
    - (iii) Our data analysis shows that, [REDACTED], there is a [REDACTED] portion of customers for which the commitment exceeded customer demand (ie where the customer has not met the commitment) and a [REDACTED] proportion of customers for which the commitment covered a large portion of the customer demand [REDACTED], although we noted that those customers might have spend with other cloud providers as well.
    - (iv) Our data analysis also shows that, [REDACTED].

- (c) Discount rate – our data analysis shows that increments in discount rate at CSD renewal for AWS and Microsoft are material. However, these figures should be read in conjunction with other analysis, such as the share of demand that is sticky.
- (d) Length of CSD contracts – our data analysis shows that AWS and Microsoft CSD contracts vary significantly in length but are typically several years long.

## **Potential benefits arising from CSDs**

- 2.103 In assessing the potential impact of CSDs on competition, we have also considered aspects of the competitive situation that may benefit competition and operate to the benefit of customers.<sup>127</sup>
- 2.104 Therefore, in this section, we consider whether there are any potential benefits arising from efficiencies on competition associated with CSDs (otherwise known as ‘rivalry enhancing efficiencies’).<sup>128</sup> This includes considering any potential benefits:
- (a) accruing to customers in terms of lower prices; and
  - (b) accruing to cloud providers that allow them to operate more efficiently, which may in turn benefit customers.
- 2.105 We will consider evidence on any potential benefits arising from rivalry enhancing efficiencies associated with CSDs that may outweigh any harm found. We note that any efficiencies that benefit customers may be taken into account as Relevant Customer Benefits (RCBs) when we consider possible remedies.<sup>129</sup>
- 2.106 In this section we set out submissions from providers on potential benefits and our initial assessment of these submissions.

### ***Relevant cloud providers’ submissions***

#### ***Benefits accruing to customers***

- 2.107 At paragraphs 1.37 to 1.39, we summarised the submissions that we have received from stakeholders in response to our issues statement. As set out above, some stakeholders consider CSDs to be part of normal business practice that

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<sup>127</sup> See [CC3 \(Revised\), Guidelines for market investigations: Their role, procedures, assessment and remedies \(publishing.service.gov.uk\)](#), paragraph 173.

<sup>128</sup> See [CC3 \(Revised\), Guidelines for market investigations: Their role, procedures, assessment and remedies \(publishing.service.gov.uk\)](#), paragraph 174.

<sup>129</sup> See [CC3 \(Revised\), Guidelines for market investigations: Their role, procedures, assessment and remedies \(publishing.service.gov.uk\)](#), paragraph 360-

should not be restrained. Some of these stakeholders also said that they directly benefit customers, for example, by leading to lower prices.

### *Benefits accruing to cloud providers and incentives to invest*

- 2.108 We have received submissions from cloud providers on how CSDs factor into their investment decisions. The evidence received to date shows that cloud providers differ in the extent to which they use CSDs to inform decisions to invest in further infrastructure.
- 2.109 Some providers said that CSDs are one of several factors they consider when deciding whether to invest in infrastructure, including:
- (a) the presence and expected growth of existing customers in a location;
  - (b) the extent to which existing customers require local infrastructure; and
  - (c) unmet customer demand.<sup>130</sup>
- 2.110 Providers also said that they use forecasts of demand to inform decisions to invest in infrastructure.<sup>131, 132</sup> They may also use committed customer demand, new strategic initiatives, resiliency and forecast revenues from CSDs.<sup>133</sup>
- 2.111 Another provider said that its decisions to invest in infrastructure are not directly linked to committed volumes, customer location, the length of customer contracts or the requirements of individual customers. Instead, it invests for the medium to long term with the objective of ensuring that it has high average server utilisation rates whilst maintaining sufficient capacity to meet peak demand.<sup>134</sup>
- 2.112 It said that, given that CSDs apply cross-product and cross-region, it cannot reliably use them to predict future demand in specific locations.<sup>135</sup> However, Microsoft said that even though customers can draw down against any Azure product or service under a CSD, the consumption plans it has with its customers provide an indication of the services and locations a customer is likely to use.<sup>136</sup>

### ***Emerging view of the potential benefits arising from CSDs***

- 2.113 Our emerging view on the potential benefits arising from CSDs based on the evidence above is that:

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<sup>130</sup> [redacted] response to the CMA's information request [redacted].

<sup>131</sup> [redacted] response to the CMA's information request [redacted].

<sup>132</sup> [redacted] response to the CMA's information request [redacted].

<sup>133</sup> [redacted] response to the CMA's information request [redacted].

<sup>134</sup> [redacted] response to the CMA's information request [redacted].

<sup>135</sup> [redacted] response to the CMA's information request [redacted].

<sup>136</sup> [redacted] response to the CMA's information request [redacted].

- (a) In general, CSDs allow customers to pay less than they would if they paid list prices. Some cloud providers said that customers like the lower prices that are offered via CSDs.
- (b) Some cloud providers have told us that CSDs help with investment decisions, although based on evidence to date it is not clear that CSDs are the only means of achieving this or that it is necessary. We invite submissions that include material, empirical evidence on whether CSDs offer cloud providers surety of demand and, if so, the extent to which any benefits derived from any surety of demand are passed on to customers through lower prices.
- (c) The provision of discounts can be beneficial to customers. However, when discounts are provided under certain conditions and/or are structured in certain ways, they can give rise to concerns about harm to competition. Therefore, even if CSDs lead to these potential benefits it does not preclude that CSDs also may give rise to harm to competition.
- (d) We will continue to consider if evidence we receive would be supportive of there being countervailing factors weighing against any harm found and/or whether they should be considered as RCBs in the event an AEC is found. In particular, we note that to date we have received limited evidence on whether any potential benefits of CSDs would also arise in the absence of CSDs or whether there are alternative means of achieving such benefits such as alternative discount structures. We therefore invite submissions on this.



### 3. Potential remedies

- 3.1 In the event that we find an AEC, we are required to decide whether, and if so what, remedial action should be taken to address that AEC or any detrimental effect on customers so far as it has resulted or may be expected to result from the AEC.<sup>137</sup> In this section we outline our initial thinking on potential remedies relating to CSDs.
- 3.2 We set out the CMA's approach to remedies in our issues statement.<sup>138</sup> This noted that we are considering the potential for cross-cutting remedies or a package of remedies which would combine to remedy, mitigate or prevent any AECs or their detrimental effects on customers.
- 3.3 We are at an early stage of considering potential remedies and as our understanding of the market(s) and the potential issues develops, we expect our consideration of potential remedies to evolve. As set out in the CMA's guidance,<sup>139</sup> we will consider and discuss potential remedies alongside working on understanding what features of the market may give rise to adverse effects. Consistent with this, we set out in this section our early views on potential remedies to any potential AEC(s) relating to CSDs and invite submissions from parties on these to help inform our emerging thinking.
- 3.4 Our assessment will involve us considering potential remedies as standalone remedies to features relating to CSDs or as components of a package of remedies.
- 3.5 In this working paper, we describe our overall approach to potential remedies to address any feature(s) of CSDs which is harming competition. We then discuss potential remedies which seek to address:
- (a) any characteristics of CSDs' pricing structures that may cause harm to competition; and
  - (b) the information asymmetry between cloud service providers and their customers around CSDs.
- 3.6 For each potential remedy, we focus on the key design considerations, potential impacts, and the potential for unintended consequences. We conclude by inviting comments on our current thinking.

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<sup>137</sup> Section 134(4) of the Enterprise Act 2002.

<sup>138</sup> [Issues statement \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

<sup>139</sup> [CMA3 \(Revised\), Market Studies and Market Investigations: Supplemental guidance on the CMA's approach \(publishing.service.gov.uk\)](https://publishing.service.gov.uk), paragraph 3.50.

3.7 We discuss a range of different remedial approaches to address any concerns arising from particular characteristics of the pricing structures of CSDs. We do not consider the remedial approaches to be exclusive and any potential remedy may involve one or multiple approaches, to comprehensively address any concerns identified.

## **Potential remedies to address the pricing structures of CSDs**

### ***Introduction***

3.8 This working paper focuses on the potential remedies that would address the following characteristics of pricing structures of CSDs are likely to affect their competitive impact:

- (a) the share of demand that is sticky;
- (b) the proportion of customers' demand covered by their commitments; and
- (c) the discount rate.

3.9 There are also likely to be other characteristics, such as the length of CSD contracts and the existence of economies of scale that affect the competitive impact of CSDs.

3.10 Accordingly, should some or all of these characteristics be found to be concerning, potential remedies could include:

- (a) Banning the use of discounts based on commitments; or
- (b) Setting restrictions on the form of CSDs that can be used, for example, by applying restrictions on the structure of any volume-related discounts, including restricting the level of discounts.

3.11 We also consider potential remedies that relate to:

- (a) the length of CSD contracts, by setting a maximum duration for any CSDs; and
- (b) increasing information transparency on CSDs.

3.12 We note that the potential remedies set out in paragraph 3.11 above are unlikely by themselves to address the specific characteristics of pricing structures of CSDs, but we consider that they could supplement potential remedies that are specific to the characteristics of CSDs, as part of a package of potential remedies.

3.13 We set out our initial thinking on each type of potential remedy below.

## ***Banning the use of discounts based on commitments***

### *Stakeholder views*

- 3.14 We have not received any stakeholder views specific to this potential remedy to date. We invite comments on our current thinking, in particular, the questions listed at paragraph 3.22 below.

### *Design considerations*

- 3.15 This potential remedy involves banning cloud providers from requiring a commitment from a customer in exchange for a discount. Cloud providers could continue to offer customers discounts, but they would be prohibited from requiring a commitment in return.
- 3.16 This ban could apply to specific forms of commitment, for example, a spend commitment, a commitment to place a given percentage of a customer's total requirement with a single provider and/or a usage commitment (eg reserved instances or committed use discounts).
- 3.17 We would consider banning usage commitments and/or other forms of commitment, if usage commitments or other forms of commitment could be used to circumvent a potential remedy that was limited to spend commitments.
- 3.18 Alternatively, a ban could apply to all forms of conditional commitment, ie serving as a principle that cloud providers would be obliged to adhere to.

### *Potential impact*

- 3.19 The lack of any requirement by providers for an upfront commitment would increase customers' contestable demand as they would not need to commit their spend to a cloud provider to receive a discount.
- 3.20 Customers would continue to be able to benefit from other discounts offered by cloud providers.

### *Potential for unintended consequences*

- 3.21 Cloud providers included within the scope of this remedy may have less certainty over the likely future demand for their services. Accordingly, they may:
- (a) offer customers smaller discounts; and/or
  - (b) reduce their investment in new data centre capacity.

## *Questions for consultation*

3.22 We invite views on the following questions:

- (a) Is it preferable to ban all types of commitments to prevent circumvention risks or just specific types of commitment? If so, which?
- (b) Which cloud providers should any ban apply to? Should it be restricted to those that are found to have market power (our emerging view is that this includes AWS and Microsoft), those with the highest share of 'sticky' demand or all cloud providers?
- (c) How important are commitments in predicting future demand, for the purposes of planning investment? To what extent do other approaches (eg observing current trends across a diverse customer base) provide equivalent information?
- (d) How should we define the duration of any ban on customer commitments? Under what conditions could CSDs in their current form be reintroduced in this market?
- (e) To what extent could cloud providers use other forms of commitment eg reserved instances, committed use discounts and/or other discounts (such as credits) to create sticky demand and/or reduce contestable demand and by doing so circumvent any potential remedies targeted at spend commitments?
- (f) Are there any other circumvention risks and, if so, what are they?

## ***Restrictions on the structure of any volume-related discounts***

### *Stakeholder views*

3.23 In response to our issues statement, one ISV said that in principle discounts should correlate with spend. It noted that the percentage discounts do not necessarily need to increase in equal increments but suggested that the customer's spend and increases in discounts should not be disconnected: eg a 5 percent drop in spend should not lead to a 50 percent drop in overall discount.<sup>140</sup>

### *Design considerations*

3.24 This potential remedy would restrict the structure of discounts offered to customers. For example, requiring cloud providers to offer customers discounts

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<sup>140</sup> Company A's response to our issues statement: [Company\\_A\\_Non-Confidential\\_\\_Redacted\\_.pdf](#) ([publishing.service.gov.uk](https://publishing.service.gov.uk))

that increase in percentage terms as a customer's spend increases and/or banning cloud providers from retroactively applying discounts.

- 3.25 Under this approach, if a cloud provider was to offer discounts, a customer would receive a lower percentage discount until its spend reaches a certain threshold. The customer would receive a higher percentage discount on any spend above the threshold. The percentage discount could increase again if the customer's spend reached the next spend threshold. As noted above, the key feature of this approach is that the customer's discount increases as its spend increases and the higher percentage discount only applies to spend above a threshold.
- 3.26 We note that it may be necessary to place some requirements around the thresholds and discount percentages in order to avoid cloud providers seeking to structure these around customers' total demand. For example, the remedy might require that spend thresholds and/or the discount percentages increase in equal increments and/or the spend thresholds start at zero spend.
- 3.27 An example of this type of 'stepped' discount structure is included below in Table 3.1.

**Table 3.1: An illustrative example of a 'stepped' discount structure**

<i>Volume measure</i>	<i>Discount percentage applied to current band</i>
0 – 100	0%
101 – 200	1%
201 – 300	2%
301 – 400	3%
401 – 500	4%

Source: CMA analysis

### *Potential impact*

- 3.28 Under this approach, customers continue to be able to get discounts related to their spending from cloud providers.
- 3.29 The discount a customer receives would be linked to observed outcomes such as spend, as the discount percentage increases incrementally as spend increases.
- 3.30 The discount is applied proactively and not retroactively. The higher discount only applies to spend above each spend threshold. This increases the likelihood of customers choosing where to place the next workload based on merit, compared to a situation where they potentially forgo a discount across their entire cloud spend.

### *Potential for unintended consequences*

- 3.31 Restricting discount structures, for example by requiring cloud providers to 'step' their discounts may result in those cloud providers who are subject to this remedy

having less certainty over the total demand for their services. Accordingly, they may:

- (a) offer customers smaller discounts; and/or
- (b) reduce their investment in new data centre capacity.

3.32 Any restrictions on the level of discount that a cloud provider could offer may result in customers paying more, either in the short or longer term.

### *Questions for consultation*

3.33 We invite submissions and relevant evidence on the following questions:

- (a) Which cloud providers should any restriction on discount structures apply to? Should it be only those with market power or should it apply to all cloud providers?
- (b) How could we improve the design of the discount structure to reduce the potential for circumvention?
- (c) Would it be beneficial to set a cap on the maximum level of discount that cloud providers could offer?
- (d) Is an alternative discount structure more appropriate for this market and, if so, what are the features of an alternative discount structure?
- (e) How should we define the duration of any CSD pricing structures? Under what conditions could CSDs in their current form be reintroduced in this market?
- (f) Are there any other circumvention risks and, if so, what are they?

### ***Setting a maximum duration for any CSDs***

#### *Stakeholder views*

3.34 Oracle said that we should consider the length of CSDs because incumbent market participants can effectively lock in customers to many-year contracts by leveraging the offer of a significant discount.<sup>141</sup>

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<sup>141</sup> Oracle's response to our Issues Statement: [OracleResponse\\_CMA\\_IssuesStatement.pdf](#) ([publishing.service.gov.uk](#)).

### *Design considerations*

- 3.35 The main design consideration is the maximum allowable duration: this could be, for example, one, three or five years.

### *Potential impact*

- 3.36 Introducing a maximum allowable term means that a customer would have the ability to renegotiate their CSDs more often, increasing the scope for competitive bids.

### *Potential for unintended consequences*

- 3.37 Customers may lose some assurance over pricing and spend for cloud services over the medium to long term, as the length of their commitment would be limited.
- 3.38 Shorter contracts may give cloud service providers less certainty over the total demand for their services, particularly in the longer term. Accordingly, they may:
- (a) offer customers smaller discounts; and/or
  - (b) reduce their investment in new data centre capacity.

### *Questions for consultation*

- 3.39 We invite submissions and relevant evidence on:
- (a) What should be the maximum allowable term for a CSD?
  - (b) How should we define the duration of any limits on the length of CSDs? Under what conditions could we remove any limits on the length of CSDs in this market?

### ***Potential information remedies***

- 3.40 We note that information remedies by themselves are unlikely to address the specific characteristics of pricing structures of CSDs that could affect their competitive impact. However, information remedies could supplement potential remedies that are specific to the characteristics of CSDs, as part of a package of potential remedies.
- 3.41 Information remedies could address asymmetries in information between cloud providers and their customers, for example, by providing customers with better information about the relationship between discount structures and levels of spend.

- 3.42 A potential remedy could be designed to require cloud providers to publish details of their discount structure or elements of it, for example, the levels of spend that qualify for certain percentage discounts.

#### *Stakeholder views*

- 3.43 We have not received any stakeholder views specific to this potential remedy to date. We invite comments on our current thinking, in particular, the questions listed at paragraph 3.49 below.

#### *Design considerations*

- 3.44 We set out below some design considerations for a potential information remedy that would require cloud providers to publish the levels of committed spend that a customer needs to meet to qualify for specified percentage discounts (“discount bands”). Our current thinking is that:

- (a) The remedy would only apply to cloud providers of a certain size as we are less concerned about such discounts being used by smaller cloud providers that are likely to only have limited market power.
- (b) The discount percentages allocated to each discount band would need to be specific rather than a range (ie if the spend is between x and y the discount percentage is z%).
- (c) The published discount bands would need to be updated relatively infrequently, ie six-monthly or annually, to allow customers to plan for upcoming CSD renewals.

- 3.45 The potential remedy could be limited to increasing information transparency; meaning that it would not be mandatory for cloud providers to apply the published discount bands in all negotiations with customers.

- 3.46 The alternative is that we could require cloud providers to apply the published discount bands in all negotiations with all customers. This would remove cloud providers’ ability to negotiate bespoke discounts with customers, reducing the potential for cloud providers aligning discounts offered with customers’ demand.

#### *Potential impact*

- 3.47 The potential information remedy described above, would seek to address any asymmetries of information that exist between cloud providers and customers and could have the following potential impact:

- (a) Customers would continue to be able to benefit from discounts offered by cloud providers.



- (b) Customers would be better informed when entering negotiations with cloud providers.
- (c) Customers would be able to better compare prices (including discounts) between cloud providers.

### *Potential for unintended consequences*

- 3.48 Potential unintended consequences that may be associated with an information remedy might include:
- (a) Published discount structures could result in ‘standardised’ discounts and a softening of competition, as providers could choose to match rather than better their competitors.
  - (b) Requiring cloud providers to follow the published discount structures could:
    - (i) limit the ability of customers to negotiate larger discounts; and
    - (ii) restrict the ability of cloud providers to make discounts specific to a customer’s requirements.

### **Questions for consultation**

- 3.49 We would particularly invite submissions and relevant evidence on the following questions:
- (a) Which providers should be subject to any information remedy? Should this only apply to AWS and Microsoft?
  - (b) Should we require cloud providers to apply the published discounts in all negotiations with customers, if not, why not?
  - (c) What should be the duration of any information remedies? For example, should we consider ‘sunsetting’ it?
  - (d) Are there any circumvention risks and, if so, what are they?

### **Summary of potential remedies and invitation to comment**

- 3.50 As set out above, we have further developed our thinking on the approach and design of the potential remedies set out in our issues statement.
- 3.51 In particular we have identified remedial approaches which would seek to address the potentially concerning characteristics of CSDs, as well as issues around any asymmetries of information. Additionally, we will set out our views on cross-cutting remedy design elements in a later working paper.