

Appendix B: Parameters of competition

- B.1 In this appendix, we present the evidence behind our assessment of the relative importance of various parameters of competition in chapter 2.
- B.2 Parameters of competition refers to the ways in which providers flex their offerings to meet customer preferences.

Evidence from cloud providers

- B.3 Cloud providers have identified a number of parameters of competition.
- B.4 Several cloud providers identified price as a key parameter of competition for cloud services.¹ Providers compete on this parameter by adjusting the prices customers face through:
- (a) Discounts: including committed spend agreements which are predominantly available to larger customers (see chapter 7) and publicly listed discounts available to all customers. In relation to the latter, one provider said that it offers public discounting options which ‘enable customers who can pay upfront fees and/or commit to use a service for a specific period’ to optimise their costs.²
 - (b) Credits: most providers we contacted offer credits to discount customers’ use of cloud services, encouraging them to trial a provider’s cloud capabilities.³ These credits can be offered through programmes targeted at specific customer groups (eg credit programs for new start-up customers).⁴
 - (c) Free tiers: free tiers function similarly to credits in that they allow customers to trial some of a providers’ services at no cost. Providers can impose limitations on these free tiers. For example, one provider said it enables customers to benefit from certain of its services free of charge for a certain amount of time or usage.⁵ Similarly, another provider allows customers to take advantage of its free tier to use a selection of its products, provided that they remain within specified monthly usage limits.⁶ On the other hand,

¹ Responses to the CMA’s information requests [redacted]; Responses to Ofcom’s information requests [redacted].

² [redacted] response to CMA’s information request [redacted].

³ Responses to Ofcom’s information requests [redacted] [redacted] response to the CMA’s information request [redacted].

⁴ Responses to Ofcom’s information requests [redacted].

⁵ [redacted] response to Ofcom’s information request under [redacted].

⁶ [redacted] response to Ofcom’s information request under [redacted].

another provider offers a free tier for many services with duration and capacity stipulated by service.⁷

B.5 Aside from price, providers also identified a number of additional parameters of competition in the supply of cloud services.

- (a) Several providers said ease of migration is a factor considered by customers.⁸ For example:
 - (i) One provider submitted that it seeks to offer technical solutions that make it easier for customers to transfer all or part of their workloads to and from them.⁹
 - (ii) Another provider submitted that it offers dedicated technical support, professional services and guidance to ensure prospective customers can smoothly migrate data to its cloud services.¹⁰
 - (iii) Another provider submitted that, as a challenger, developing products and features that facilitate multi-cloud strategies is critical to its ability to win workloads from the two incumbents.¹¹
- (b) Several providers said security and data protection are important factors in driving customer acquisition and retention.¹²
 - (i) One provider said that it anticipates data privacy and cybersecurity will become increasingly important drivers of customer choice in the future, as more customers migrate their workloads to cloud and regulatory requirements intensify.¹³
- (c) Two providers said innovation is a parameter of competition which is continuously striven for by providers.¹⁴
 - (i) One of them said that it competes on this parameter by continuously striving to develop products that are innovative and meet evolving demands.¹⁵
 - (ii) The other said that the dynamism of the sector for IT services makes iterative innovation necessary to attract and retain customers.¹⁶

⁷ [X] response to Ofcom's information request [X].

⁸ Responses to the Ofcom's information requests [X]; [X] Responses to the CMA's information requests issued to [X].

⁹ [X] response to CMA's information request [X].

¹⁰ [X] response to Ofcom's information request [X].

¹¹ [X] response to CMA's information request [X].

¹² Responses to the CMA's information requests; [X] response to Ofcom's information request [X].

¹³ [X] response to Ofcom's information request [X].

¹⁴ [X] response to Ofcom's information request [X]; [X] response to CMA's information request [X].

¹⁵ [X] response to Ofcom's information request [X].

¹⁶ [X] response to CMA's information request [X].

- (d) One provider said that the availability of advanced cloud features was also an important factor influencing customer choice.¹⁷
- (e) Several providers said that reliability¹⁸ of a platform is an important consideration for customers.¹⁹ One of the providers said that it works hard to ensure its cloud platform has lower down time than those of its main competitors.²⁰
- (f) AWS and Microsoft highlighted that customers want flexibility to deploy cloud services in combination with their traditional IT infrastructure (hybrid deployment).²¹
- (g) One provider said customers care about the elasticity of its services, which allows them to provision the resources that they actually need, knowing they can instantly scale up or down along with the needs of their business.²²
- (h) One provider said that customers' historical choices remain a leading factor in influencing their choice of cloud provider today. The provider said that the many companies choose to remain with their original provider (often either [redacted] or [redacted]).²³
- (i) Another provider said that brand trust is an important factor driving consumer choice.²⁴
- (j) One provider said that technical support was an important customer criterion for choosing a cloud provider but did not clarify what this support would entail.²⁵ Another provider also said that its customer service is one of its key strengths.²⁶

B.6 Some cloud providers have identified AI as an increasingly important parameter of competition. In response to our PDR, Microsoft submitted that rolling out AI capabilities is a key parameter of competition between cloud providers,²⁷ and AWS said that AI is driving a lot of competition.²⁸ We cover this issue in greater depth in the Impact of AI chapter.

¹⁷ [redacted] response to CMA's information request [redacted].

¹⁸ Reliability is often captured by the uptime: a measure of the amount of time that a system or service is available and operational without any planned downtime.

¹⁹ Responses to the CMA's information requests [redacted].

²⁰ [redacted] response to Ofcom's information request [redacted].

²¹ [redacted] response to the CMA's information request [redacted]; Microsoft's response to the CMA's information request [redacted].

²² [redacted] response to CMA's information request [redacted].

²³ [redacted] response to Ofcom's information request [redacted].

²⁴ [redacted] response to CMA's information request [redacted].

²⁵ [redacted] response to CMA's information request [redacted].

²⁶ [redacted] response to CMA's information request [redacted].

²⁷ [Microsoft's response to the CMA's PDR dated 28 January 2025](#), paragraph 79.

²⁸ [Summary of hearing with AWS, 12 March 2025](#), paragraph 10.

- B.7 Two providers said that different customer groups prioritise different factors when choosing a cloud provider.²⁹
- (a) One of these providers clarified that it does not perceive these differences to be driven by customer size or where customers are based.³⁰ It said that:
- (i) Customers in regulated sectors (eg, financial services, healthcare or telecommunications) tend to prioritise infrastructure security, resilience and data privacy in order to fulfil their regulatory obligations and the needs of their customers. This point was reiterated by another provider.³¹
 - (ii) Similarly, public sector customers may prioritise considerations around data sovereignty and national security, as well as the costs of the services procured.
 - (iii) Customers in the technology sector and developers may prioritise advanced and innovative features, functionality and technical flexibility and customisation.
 - (iv) Customers active in media, gaming and streaming will prioritise data latency, favouring proximity to the data centre to minimise the former.
- (b) The other provider said that in industries such as retail, there may be a greater focus on cost-competitiveness, modernised workloads, availability and reputation.³²
- B.8 One provider said that the increasingly heterogeneous nature of customers' needs has 'opened opportunities for existing and new cloud providers to differentiate themselves in different industry and workload verticals, without the need for hyperscaler scale'.³³

Evidence from customers

- B.9 We initially asked large customers to rate the importance of a list of factors their organisation considers when choosing their main public cloud provider.
- B.10 The following factors were identified as the most important by the large customers we have contacted when choosing their main public cloud provider.

²⁹ Responses to the CMA's information requests [REDACTED].

³⁰ [REDACTED] response to CMA's information request [REDACTED].

³¹ [REDACTED] response to CMA's information request [REDACTED].

³² [REDACTED] response to CMA's information request [REDACTED].

³³ [REDACTED] response to CMA's information request [REDACTED].

- (a) Service quality: almost all customers considered this to be important or very important.³⁴ Although one customer said this is largely not a differentiator between providers,³⁵ and another said that in terms of service quality the 'main three [providers] are similar'.³⁶
- (b) Price, including discounts or cloud credits: many customers considered this to be important or very important.³⁷
- (c) Data sovereignty requirements: many customers considered this, including compliance with data localisation, privacy and protection regulations, to be important or very important.³⁸ Some customers said that almost all providers can support customers' usual requirements around data protection and sovereignty.³⁹
- (d) Range of cloud infrastructure services: many customers considered this to be important or very important.⁴⁰ One customer added that the main cloud providers have broadly similar capabilities in this regard, with AWS having a slightly superior offering.⁴¹
- (e) Number and location of data centres: many customers considered this to be important or very important.⁴² Some customers said this was important as they must comply with data sovereignty regulations.⁴³ Other customers cited resiliency concerns. One customer said that it is important for services to be distributed across multiple locations to minimise the risk of disruptions, but added that, provided there are sufficient locations, the absolute number of locations between providers is not the ultimate determining factor when choosing a provider.⁴⁴

B.11 The following factors were identified as the next most important factors by customers when choosing their main public cloud provider.

- (a) Cost and ability to use software licences.⁴⁵
- (b) Cloud-specific skills of employees: one customer who identified it as very important, said that cross-skilling its employees between different cloud providers can prove costly in terms of productivity loss.⁴⁶ On the other hand,

³⁴ Responses to the CMA's information requests [redacted].

³⁵ [redacted] response to the CMA's information request [redacted].

³⁶ [redacted] response to the CMA's information request [redacted].

³⁷ Responses to the CMA's information requests [redacted].

³⁸ Responses to the CMA's information requests [redacted].

³⁹ Responses to the CMA's information requests [redacted].

⁴⁰ Responses to the CMA's information requests [redacted].

⁴¹ [redacted] response to the CMA's information request [redacted].

⁴² Responses to the CMA's information requests [redacted].

⁴³ Responses to the CMA's information requests [redacted].

⁴⁴ Responses to the CMA's information requests [redacted].

⁴⁵ We considered software licensing in more detail under the heading 'foreclosure using software inputs' in chapter 9.

⁴⁶ [redacted] response to the CMA's information request [redacted].

another customer who gave this factor the lowest rating, said that it can just match the skills of its employees to the platform of choice, rather than the other way around.⁴⁷

- (c) Existing relationship with the cloud provider: a few customers said that switching providers is both time-consuming and costly.⁴⁸
- (d) Ease of integration with existing technology: there were multiple cases where customers considered this to be important or very important. A few of these customers said that this factor was important, as they needed their cloud solutions to integrate with their on-premises environments.⁴⁹ A handful of other customers did not assign much importance to this factor, as they either considered most providers to have similar capabilities in this respect or they used third party solutions to facilitate integration.⁵⁰ Additionally, a few customers said that this factor is of decreasing importance to them, as they are moving all their workloads to the cloud.⁵¹

B.12 The following were considered as of moderate importance by customers:

- (a) Range of cloud infrastructure services offered by ISVs: some customers considered this to be important. A few customers said that most ISVs are usable on all providers' clouds, so this is not a differentiating factor between providers.⁵² One customer said that the extent to which a provider offers services via ISVs can be taken as a signal of the quality of its cloud offering, as ISVs must have had faith in its cloud services to have built their software stack on them.⁵³
- (b) Ease of integration with other public clouds: there were cases where customers considered this to be important, with a few of them citing their current multi-cloud strategy as the rationale behind their ranking.^{54,55} Some of the customers who gave it a low importance rating said that integration with other public clouds can happen through internet facing APIs or intermediaries, so a provider's capabilities in this area are not a major concern when choosing a cloud provider.⁵⁶ Others of these customers said that most providers have similar capabilities in this respect, with one adding that no provider offers seamless integration with their competitors.⁵⁷

⁴⁷ [REDACTED] response to the CMA's information request [REDACTED].

⁴⁸ Responses to the CMA's information requests [REDACTED].

⁴⁹ Responses to the CMA's information requests [REDACTED].

⁵⁰ Responses to the CMA's information requests [REDACTED].

⁵¹ Responses to the CMA's information requests [REDACTED].

⁵² Responses to the CMA's information requests [REDACTED].

⁵³ [REDACTED] response to the CMA's information request [REDACTED].

⁵⁴ See Industry background chapter, switching and multi-cloud for types of multi-cloud.

⁵⁵ Responses to the CMA's information requests [REDACTED].

⁵⁶ Responses to the CMA's information requests [REDACTED].

⁵⁷ Responses to the CMA's information requests [REDACTED].

- (c) AI capabilities: in a handful of cases customers considered this to be important or very important. However, there were also multiple cases where customers said that providers' AI capabilities are becoming an increasingly important consideration.⁵⁸ For example, one customer said that it increasingly sees AI capabilities as a differentiator between providers.⁵⁹ Following publication of our PDR, we asked the same large customers of public cloud providers to rate the importance of providers' AI capabilities when choosing their main cloud provider. We found that some customers said AI capabilities were a more important consideration when choosing their main cloud provider today versus when they were initially asked, but generally customer views stayed the same.⁶⁰

Negotiations

- B.13 We also asked providers and customers about the terms they negotiate on as this can indicate the terms and thus parameters of competition that cloud providers are flexing in practice.
- B.14 AWS, Microsoft, Google and Oracle told us that large customers (ie customers with higher spend) typically negotiate the price of service. These providers either mentioned that many of these customers may choose to enter into CSAs and/or other agreements or discounts.⁶¹ This is particularly the case for customers requiring continued cloud services and who can broadly predict their minimum spend across an extended timeframe.⁶²
- B.15 We asked large customers about the key considerations or parameters when negotiating terms with public cloud providers. Most customers we contacted said that price was a key consideration when negotiating terms with providers. For example, there were cases where customers mentioned minimum committed spend discounts,⁶³ and some of those customers said that the timeframe over which the commitment needed to be achieved and the ability to roll over some of the commitment within a grace period were important factors.⁶⁴
- B.16 Cloud providers reported a variety of levels of willingness to negotiate non-price terms. In particular:
- (a) One cloud provider said that it enables its customers to include amendments to their [redacted] Agreements to facilitate their customers meeting their regulatory

⁵⁸ Responses to the CMA's information requests [redacted].

⁵⁹ [redacted] response to the CMA's information request [redacted].

⁶⁰ See chapter 4 of this report for more information on the impact of AI on customer decision-making.

⁶¹ AWS' response to CMA's information request [redacted]; Google's response to CMA's information request [redacted]; Microsoft's response to Ofcom's information request [redacted]; Oracle's response to CMA's information request [redacted].

⁶² [redacted] response to CMA's information request [redacted]; [redacted] Response to Ofcom's information request [redacted].

⁶³ Responses to the CMA's information requests [redacted]; [redacted] submission to the CMA [redacted].

⁶⁴ Responses to the CMA's information requests [redacted].

needs, additional security commitments and modified liability terms.

However, the cloud provider said it does not negotiate with customers on the technical characteristics of its services.⁶⁵

- (b) Another cloud provider said that, for its strategically important customers, contracts tend to include specific terms and services where certain product, legal, financial – and, where applicable, pricing – provisions are negotiated on a more bespoke basis. It also said it regularly concludes amendments to its standard template contract if there is a willingness from customers to further negotiate commercial and/or legal conditions.⁶⁶
- (c) A third cloud provider said that it can only occasionally adjust the terms and conditions available to customers, as its cloud services agreement has standard terms that reflect the underlying specification and characteristics of the service. It said that it will typically avoid amending these terms unless the service is bespoke or there is a substantial and critical reason to do so. It said that its willingness to amend the technical characteristics of services ultimately depends on what service is being procured. If it is something that can be adjusted or is bespoke, then it said it will consider exploring this.⁶⁷
- (d) A fourth cloud provider offers similar terms to all its customers, aside from those in highly regulated industries who might receive additional terms based on their specific regulatory requirements. It also stated that it rarely negotiates with customers on technical characteristics because to do so goes against the nature of a standardised service such as cloud.⁶⁸

B.17 A few large customers said that it is challenging to negotiate bespoke non-price terms with providers, as cloud providers often offer ‘off the shelf’ cloud services with standardised contract dimensions around service level agreements, liability provisions and technical specifications.⁶⁹

B.18 The non-price parameters that customers we contacted mentioned more often were:⁷⁰

- (a) Service performance, availability and reliability. Many customers considered the availability and reliability of cloud services to be a key parameter in negotiations with providers. Many of these customers said they negotiate

⁶⁵ [X] response to Ofcom's information request [X].

⁶⁶ [X] response to CMA's information request [X].

⁶⁷ [X] response to Ofcom's information request [X].

⁶⁸ [X] response to Ofcom's information request [X].

⁶⁹ Responses to the CMA's information requests [X].

⁷⁰ In addition to these points, three customers [X] said that the scalability and flexibility of a provider's cloud services is a key consideration and three other customers [X] said they considered parameters associated with the exit terms of their contracts.

enhanced Service Level Agreements⁷¹ with providers,⁷² or more generally negotiated to ensure reasonable performance levels.⁷³

- (b) Security and data protection. There were cases where customers said that data protection and security provisions are key considerations in their negotiations with providers. For example, a few customers said that where data is hosted relates to data protection considerations.⁷⁴
- (c) Support from providers. There were cases where customers also said that the level of support offered by providers was an important parameter of negotiations. Some of these customers referred to support with the migration to cloud, as well as with the initial deployment process, some referred to providers offering training courses or credits and some referred to the provision of professional services.⁷⁵

⁷¹ SLAs guarantee an agreed minimum level of uptime, speed, reliability and availability of cloud services and set out the compensation and remedies customers will receive in the event of service failure or disruption. Responses to the CMA's information requests [§].

⁷² Responses to the CMA's information requests [§].

⁷³ Responses to the CMA's information requests [§].

⁷⁴ Responses to the CMA's information requests [§].

⁷⁵ Responses to the CMA's information requests [§].