Your response

Question	Your response
Question 2.1: How do you see developments in the international context impacting the provision of cloud services in the UK?	*Is this response confidential? – No* ***Digital Sovereignty*** *Digital sovereignty is becoming increasingly important across the globe. Both the US and China claim this status but are fighting (mostly each other) to defend it. Europe is playing catch up through Gaia-X and related initiatives, as are many nation states.* *There is increasing recognition that data will underpin the economies of the 21st century and beyond and, in a geopolitically unstable world where theatres of war are as much digital as they are terrestrial and cyber resilience is critical, nations are now beginning to take back control of their digital infrastructures.* ***Data localism versus data colonialism*** *US trade associations representing Silicon Valley tech giants are on the offensive: A 2017 paper produced by the Information Technology and Innovation Foundation (ITIF) argues* "Some policymakers believe that, if they restrict data flows, their countries will gain a net economic advantage from companies that will be forced to relocate data-related jobs to their nations. These supposed benefits of data-localization policies are misunderstood. Data centers have become more automated, meaning that the number of jobs associated with each facility, especially for technical staff, has decreased. While data centers contain expensive hardware (which is usually imported) and create some temporary construction jobs, they employ relatively few full-time staff"[1] *This statement, made on behalf of ITIF members (predominantly Silicon Valley tech giants)*

[1] http://www2.itif.org/2017-cross-border-data-flows.pdf?_ga=2.161552892.1971882626.1578319817-376069940.1574166797 (page 5)

suggest that there are greater economic benefits for ITIF members to keep customer data within the US.

The ITIF expanded its argument in 2021, equating data localism to data protectionism (although its own thesis could easily be construed as data colonialism), arguing that data localism is practiced as an overt or covert form of authoritarianism to facilitate domestic surveillance (conveniently forgetting that many data localisation initiatives were driven by Snowden's revelations about US surveillance of its own citizens).

The report cites extreme examples such as Russia, describes Europe as one of the worst offenders (Europe is a very valuable market for US cloud vendors but has a high cost of doing business given the regulatory landscape), calls out Europe for GAIA-X (although GAIA-X has been subject to strong criticism for allowing global [US, China] cloud vendors to dominate) and calls out France for a) declaring that data produced by public administrations cannot be stored in non-sovereign cloud as the data is considered to be an archive and must therefore be stored domestically; and b) the creation of a trusted sovereign cloud known as "Bleu" by two French tech giants under the auspice of GAIA-X.

Geopolitics

Russia's invasion of Ukraine underlines increasing global geopolitical instability and demonstrates that Europe cannot be complacent about either its economic dependencies on third countries or even about peace and stability within Europe itself.

Populism is rising in Europe as it is across the globe. Wars and populism are digitally fuelled. Digital can be as much a force for bad as it can be a force for good.

The world's growing unease about the enormous power wielded by the global online platforms turned into shock and awe, as Donald Trump was silenced by Twitter - and his supporters then silenced by Apple, Google and AWS

through the removal of Parler from their respective app stores and servers.

Parler says these actions are driven by "political animus" and tried to sue AWS for breach of US anti-trust law – claiming that their action was "like pulling the plug on a hospital patient on life support".

Hyperscale cloud vendors, along with other online platforms have, for years, claimed to be a neutral conduit that simply provided a platform for others to have a voice - a commodity with no responsibility for content generation.

The Parler case disproves the notion that these platforms are just commodities. The global hyperscalers and online platforms are now too powerful to be "just a platform" and operate at a level of scale and complexity which pushes them firmly out of the "just a commodity" space.

AWS has been very vocal about the support it is offering to Ukraine. We may think that AWS is standing on the side of the angels today, but AWS is a US company and we need to also to think of the political motivations – and the wisdom or otherwise of entrusting our data to a foreign entity that may not have the UK's best interests at heart.

In an era of increasing geopolitical instability our future relationship with US or any other dominant country must be such that we retain our ability to negotiate and be independent. Europe's dependency on Russian gas is a case in point and is analogous with data, where the industrial strength and ownership is clustered in the US and China, leaving others as also rans. This is why Europe is investing in GAIA-X – to develop a strong European industry that supports data sovereignty, independence & resilience

The UK's position

The UK already stores a huge amount of data with foreign companies (CEPS recently estimated that 92% of the western world's data resides on US owned servers) which risks exposing the data to foreign jurisdiction.

	The UK government, having drunk the commoditisation Kool-Aid [2] is now blogging about lock-in and awarding multi-million long term contracts to the hyperscale cloud vendors which involve huge upfront payments in return for discounts in an attempt to control costs. This is not because government chose cloud, rather because it chose to choose cloud vendors instead. *If cloud provision in the UK continues to consolidate on hyperscale (and there is no evidence to suggest that this trend will change) there is a very real threat to the UK's ability to achieve digital sovereignty – at least for data and digital services that it may want to protect given value and/or sensitivity.* *This threat will be exacerbated by the proposed "risk-based" assessment for international data transfers set out in the Data Protection and Digital Information Bill: this is a gift to the hyperscalers which will inevitably develop tools to assist cloud consumers to assess risk in a way that favours hyperscale off-shore hosting where any "residual risks" are off-set by cheaper hosting costs.* *Unless UK starts to value and support its own cloud and hosting industry the UK will fall behind the US and Europe, the market will further consolidate on too few cloud vendors and the UK risks losing control of any vestige of digital sovereignty that it currently has.*
Question 4.1: Do you agree with the scope of the market study?	*Is this response confidential? – No* *The Ofcom market study is welcomed and is in my view is long overdue. Whilst the study rightly focusses on consumers, hyperscale cloud is a huge and complex industry that underpins so much of 21st century society and economies. Therefore, the impact of hyperscale cloud on society and economies is significant and needs to be taken into account. In particular I recommend that the issues covered in para 1.19 of the "Call for inputs" document are given more prominence.*
Question 4.2: Are there other ways to those listed in paragraphs 4.11 to 4.14 in which	*Is this response confidential? – No*

[2] "In two or three years' time what we now call IT, the delivery of those disaggregated services like hosting, networking, end user devices, support, all of those, will become core commodity services" and will be bought "like stationery"

customers use cloud services, and factors which determine their cloud usage, that we should examine?	*In addition to the customer uses of cloud identified by Ofcom, multi-cloud strategies are often pursued by customers in order to improve operational and cyber resilience through reduced dependency on one vendor.* *Cloud concentration risk has been covered to an extent in my response to question 2.1. Nonetheless it is an increasingly important issue for many cloud customers.* *Vast concentrations of data are held by a very few cloud vendors (AWS, Microsoft, Google and Alibaba). The risks are well understood:* • *a lack of competition and choice in the market is not in the best interests of cloud users who will deprived of real technical innovation* • *it is a seller's market when it comes to value for money* • *switching vendors will become increasingly difficult and expensive, perpetuating both lock-in and concentration* • *outages can and do happen and are becoming increasingly impactful and expensive as the scale of the outages increase* • *concentrated data is an attractive prospect for bad actors and increases the risk of cyber attack* • *rapid evolution and expansion of cloud services creates new vulnerabilities* *In June 2022 the Treasury issued a policy paper proposing a new regulatory framework to provide the Bank of England and the Financial Conduct Authority with new powers to oversee technology firms that provide critical services to the financial industry.* *This was driven by concern about the growing dependence of banks on cloud, and the lack of vendor diversity. In 2020, over 65% of banks used the same four cloud vendors for cloud services, according to Treasury's statement[3].*

[3] Ironic, given government's dependence on one cloud vendor.

	*Recently, the Bank of International Settlements noted that growing reliance among financial institutions on cloud supplied by only a handful of companies could have "systemic implications for the financial system". The paper "**Big tech interdependencies – a key policy blind spot**" observed that the market for cloud computing software is dominated by four players accounting for around 70% of the global cloud market.* *The Bank of England and the Bank of International Settlements correctly recognise that it is not cloud services per se that are the problem. Viable alternatives to the big players exist – alternatives that can truly compete on price, quality and functionality. If the alternatives were given the chance to operate on a level playing field, with recognition and support from government, then the rapidly emerging resilience risks could be addressed.* *Cyber-attacks and outages can and do happen within cloud services, and with so much data and so many customers concentrated on a platform, the consequences can be catastrophic . This risk appears to be lost on the UK government, which is gravitating towards AWS at pace.* *It is worth noting that Lloyds of London has costed a significant cloud outage in the US at $19bn with the vast majority of that cost uninsured and most hyper-scale cloud vendors taking little if any liability for any consequent data loss or damage[4].*
Question 4.3: Do you agree that the features set out in paragraph 4.15 are the most important features for customers when choosing cloud services?	*Is this response confidential? – N* A customer's choice of cloud services may well involve many of the features that Ofcom has set out in paragraph 4.15 but I believe that these features are an over-simplification of a set of complex and fundamentally anti-competitive behaviours on the part of the hyperscale cloud vendors. All of the behaviours set out in my response to question 4.9 (revolving doors, undue influence, predatory pricing and lock-in) will also have a bearing on which cloud vendor is selected.

[4] *[✂]*

	These behaviours are underpinned by hyperscale hype that promulgates groupthink amongst cloud customers that a) the cloud market is far narrower than it actually is and b) migration to the cloud is an automatic route to significant cost reductions and better business outcomes. The former point stifles competition and innovation and is a sign that the UK cloud market is in very poor health. The latter point has been disproven on multiple occasions and elimination of cloud bill shock (see response to question 4.9) has become an industry in its own right.
Question 4.4: Is our characterisation of how cloud services are sold and buying patterns correct at paragraphs 4.16 to 4.18? Are there other methods?	*Is this response confidential? – No* *I agree with Ofcom's summary within paragraphs 4.16 to 4.18. Most cloud vendors will not negotiate terms or services – multi-tenant public cloud platforms are simply not manageable or cost effective if key elements of service and terms become atomised and bespoke.* *What this has meant in practice for UKCloud's market – the UK public sector – is that key elements of government's digital (and other) policies have been changed to accommodate public cloud. Most notably, the Government's current protective marking scheme, where the "OFFICIAL" tier conflates three tiers of its preceding regime and has led to the emergence of a semi-official "OFFICIAL-SENSITIVE" caveat for some data. Liam Maxwell (see response to question 4.9) blogged that this change was a key enabler for government's digital transformation.* *Lack of competition is a key element in the UK cloud market.* *The UK public sectors point of entry for buying public cloud services is generally G-Cloud. The G-Cloud framework operates as a catalogue, where business can only be called off via the "di-*

	rect award" procedure (i.e. without competition), as the Crown Commercial Service's (CCS) own guidance attests[5]. *G-Cloud suppliers have no visibility of incoming requirements until a G-Cloud contract has been awarded and published on Contracts Finder. This lack of transparency provides no opportunity for UK cloud hosting vendors to demonstrate their capabilities, credentials and pricing to the market.* *For cloud hosting the concept of buyer choice is academic given the Public Cloud First policy which, in its application within Government, narrows the field from several hundred cloud hosting vendors within the Digital Marketplace to, at best, two (AWS and Microsoft Azure).* *Public Cloud First led to HMRC giving notice to UK SME DataCentred, that it would be moving the DataCentred hosted workload to AWS, driving DataCentred out of business, whilst Eduserv chose to close its UK data centres to focus on hyperscale a year after government announced its "public cloud first" policy leading to the loss of over 30 jobs.* *In due course this policy caused UKCloud to enter into Compulsory Liquidation in 2022 - despite independent benchmarks showing that UKCloud was consistently 20% cheaper than its hyperscale competitors.* *However, UKCloud was denied the opportunity to demonstrate its pricing to UK government buyers through any form of competitive process and was unable to secure investment because UKCloud competing with the hyperscalers.*

5 You must not:(see remainder of footnote on page 8)

- combine the results of more than one search to create a shortlist
- hold a competition to decide the winner
- ask suppliers to tender, bid or submit proposals
- unfairly exclude any services without referring back to your requirements

	When I worked at UKCloud, the sales team was routinely told by digital teams within the major Government departments such as DWP, MoJ, Home Office, HMRC and Cabinet Office that their CDIO's policy is to migrate to AWS and that only AWS may be used as the "proof-point" for cloud services. *During a recent high profile, high value Home Office tender, one of UKCloud's partners was explicitly told through multiple bidding rounds that the answer for hosting had to be AWS, even though, in the partner's view, AWS did not demonstrate the best technical fit or the best pricing.* *These decisions are not transparent and by definition cannot have been tested with the competitive rigour required by the Public Procurement Regulations. Even the CCS has decided AWS will be its default cloud hosting vendor[6] and the decision appears to be technically led rather than business led.* *The CCS's own guidance on direct award suggests that the procedure is only suitable for low value, low volume commodity products. As it is, AWS has enjoyed direct revenues of at least £649m[7] (and more than twice that through partner and resellers) without having to undertake any form of competitive process.* *Based on the Cabinet Office's own published figures, AWS currently enjoys (at least, as indirect sales are excluded) over 60% of the UK public sector cloud hosting market.[8]* *In 2019 the Home Office awarded AWS a £100m 4 year contract via the G-Cloud direct award procedure, quickly replaced by a further £120m G-Cloud contract in 2020 (another direct award), whilst HMRC and DWP have also very recently awarded AWS multi-million contracts (£20m and $110 respectively) through this procedure. All of these awards featured un-refundable multi-million annual upfront payments.*

[6] Decision here...
We use Amazon Web Services (AWS) as the default cloud vendor for newly built services which require Infrastructure as a Service (IaaS) or Platform as a Service (PaaS) hosting.

[7] As of 30/03/23 https://app.powerbi.com/view?r=eyJrIjoiNjhlYmE2M2EtZWFiMy00ZDc4LWE2MWMtOTQ2NDlmZTQ5YjExIiwidCI6IjlmOGMwZDc5LTNlODctNGNkMy05Nzk5LWMzNDQzMTQ2ZWE1ZSIsImMiOjh9

[8] Based on CCS figures (footnote 7) as at 18/01/23

	In the case of DWP, the contract was awarded in order to replace an existing contract (£18m) which "no longer offered value for money". The DWP, Home Office and HMRC intended to take advantage of a discount negotiated with AWS by the CCS under an arrangement that traded off short term discounts for long term lock-in[9] [10].
Question 4.5: Do you agree with our characterisation of competition for different types of services and customers? Are there any other aspects where competition may vary?	*Is this response confidential? - N* *The ITIF argues the tech giants inhabit a competitive market in their own right – where the giants compete against each other for technological innovations, data, advertising revenue, and consumer attention – and concludes that accusations of anti-competitive behaviour on the part of the tech giants are highly exaggerated.* *The ITIF lobbies that there is no case to make for tougher anti-trust action, and any attempt to scale back, or break up, the tech giants would harm consumer welfare, as consumers gain from the "network effects" of such huge concentrations of data. The "virtuous circle of data network effects", means that more users = more data = smarter algorithms = better products = more users and so on.* *Consumer welfare, the ITIF argues, is where regulators and policy makers should continue to concentrate their efforts, rather than on the business models of the platform vendors.* *With the exception of this Ofcom market study, there has been little evidence that the UK has any interest in understanding what the impact of hyperscale cloud vendors on its economy, on its ability to achieve digital sovereignty or on the nation's overall cyber-resilience.* *On this latter point, there has been some concern expressed about the dependency of the UK financial services industry on a very few cloud vendors but this concern does not extend into health, defence, intelligence and national*

[9] https://aws.amazon.com/blogs/publicsector/one-government-value-agreement-accelerating-cloud-adoption-innovation-across-uk-government/

[10] https://www.crowncommercial.gov.uk/news/crown-commercial-service-and-amazon-web-services-launch-new-mou-for-cloud-computing-services

	security, communications or the many other market verticals that are dependent on these same few cloud vendors.
Question 4.6: What are your views on our characterisation of cloud ecosystems?	*Is this response confidential? – No* *Shortly before the government announced that Social Value would be mandated within public procurement, AWS published a report assessing the beneficial impact of AWS on the UK in 2020. In short, the report claimed that AWS had generated £8.7bn of economic value to other businesses during the year – the equivalent of 0.4% of GDP. This headline figure was then shown as a schematic, broken down by parliamentary constituency.* *While the report does not quantify the specific benefits that AWS's many thousands of UK partners bring to the UK economy, it does feature impressive headline statistics (based on a very small sample).* *Partner ecosystems are a longstanding feature of the technology industry where partners are invariably incentivised to sell its partner's products and services. This is of no consequence in a healthy, competitive market. In unhealthy markets, such as public cloud, extensive ecosystems can be problematic:* - *consultancies and value-added resellers may well be incentivised to offer solutions that are not in the best interests of, or offer the best value to, their own customers creating conflicts of interests* - *the more a partner is incentivised to sell proprietary solutions and tools, the more the partner is pushing its own customers into cloud vendor lock-in. This may be a virtuous circle for the cloud vendor but it is not in the consumer's best interests* - *There is increasing concern that innovations are being stifled as the hyperscalers develop tools and services that compete with the added value of the partner ecosystem (see also AWS Marketplace in response to question 4.9)*

	- *Many UK hosting companies have simply given up on their own capabilities and have opted instead to enter the hyperscale ecosystem. Eduserv is the classic example, closing its UK data centres to focus on hyperscale leading to the loss of over 30 jobs. Fordway has its own hosting capability but prefers to position as a Microsoft Azure partner* - *The 60% partner profit margin claimed by AWS at its 2022 re:Invent conference may the possible in theory but is in reality very difficult to achieve – particularly for smaller businesses which may not be able to access e.g hyperscale volume discounts.* - *UK businesses will invest in the certifications and qualifications that are required to be a hyperscale partner thus ensuring that their offerings become a solution looking for a problem and perpetuating concentration on too few vendors.*
Question 4.7: Do you agree with our proposed approach for considering the dynamics in cloud infrastructure services competition, and what do you think are the most important issues to examine?	*Is this response confidential? – No* *While I would not disagree with what Ofcom is proposing, I would recommend that Ofcom does not fall into the trap of assuming hyperscale cloud (and its ecosystems) is the beginning, middle and end of the market.* *There is a risk that Ofcom will produce an academic and interesting analysis that will not serve to make any difference to the market.* *I would recommend that Ofcom extends the scope of the competitive dynamic piece to look at how hyperscale cloud interacts with local (e.g UK) competition and then frame that with wider and more strategic questions around economic, societal and national capability impact.* *A second point is that the hyperscale cloud vendors are not immune to the economic pressures that we are all facing. The hyperscalers have already raised prices by 30% in Europe in response to rising energy costs.* *All the US hyperscalers are laying off staff. Profit margins for hyperscale cloud are large*

	and the hyperscalers will be under pressure to sustain those margins which could well be through further price rises as well as staff lay-offs. This is bad news for customers that cannot afford the time, resource and/or costs to move to another vendor. *Vendor lock-in is an issue now and will become a significantly larger issue as cloud adoption grows.*
Question 4.8: Do you agree we should examine cloud ecosystem competition? How do you see cloud ecosystems currently developing, including around core areas set out in paragraphs 4.40 and 4.45?	*Is this response confidential? – No* *Yes. Please see the points made in response to question 4.6*
Question 4.9: Do you have any concerns regarding any conduct or activities of any vendor(s) that may adversely affect market dynamics now or in the future?	*[✂]*
Question 4.10: Are there any remedies that you believe we should investigate further to mitigate some of the potential risks we've identified in this document or concerns you have with the market?	*Is this response confidential? – No* *There is a risk that any remedy is too little too late given the stranglehold that the hyperscalers have on the UK cloud market. Nonetheless there are some measures that could be taken to improve the situation. The principal measure should be the formulation of a National Cloud Strategy that recognises that cloud is underpinning almost everything of national importance in the UK :* - *Through a joint government/industry partnership, the UK should at least match the French government's €1.8 billion investment in its cloud industry so we can compete globally in the 21st Century: the UK should be looking at what other national governments are doing to invest in their own cloud computing sector as a model to not just follow, but to exceed.* - *Reform public procurement practices: government must reorient its approach to cloud procurement and the Procurement Bill provides the perfect opportunity. Two key changes are needed:*

	i) Domestic cloud providers should be the 'provider of first preference' for government cloud contracts *ii) There should be an end to direct awards in government procurement of cloud services with competition being the default.* - *A legal and regulatory environment should be established that keeps the UK's data in the UK, unable to be accessed by foreign authorities without the lawful consent of British courts. The establishment of a pro-competition regime in the digital markets is welcomed, but for it to be truly effective it must be matched with an appreciation of the importance of retaining data onshore in the 21st Century and ensuring national resilience.* - *Government should ensure that its environmental and corporate responsibility aspirations are baked into all public sector contracting, by increasing 'social value' or 'public good' criteria to a 20% weighting: the publication of the Procurement Bill marked an attempt to broaden the lens through which contracting parties view and assess procurement bids.*