

Submission to the EU Commission's

Call for contributions on

Competition in Generative AI

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¹ This Submission is made in a personal capacity. The views expressed and any errors are my own

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EXECUTIVE SUMMARY

This report responds to the [European Commission's Calls for Contributions on Competition in Virtual Worlds and Generative AI](#), ("The Call"). My response focuses on Competition in Generative AI. The Commission's Call asked respondents to consider a list of 12 questions on Generative AI (GenAI).

In general, the EU's call for contributions on GenAI, and its related announced investigations² into GenAI markets seem premature. The justification for the call and the investigations is unclear, and is not soundly based in prima facie evidence, and signals a predisposition to regulation. It is thus premature. It will trigger costly and potentially biased regulatory processes, that will only distract, and adversely distort the development of an important new market, and thus ultimately harm the welfare of European people. A "wait and see" strategy, that allowed evidence or facts and research on the GenAI market(s) to occur first over a longer time frame would be a better a strategy than this clearly premature jump to action. The current call and the investigations should be postponed in the interest of the welfare of EU citizens.

I highlight the following six fundamental problems with the justification for the call for contributions on GenAI:

- 1) Regulatory Objective – A clear objective is not provided justifying the need for a call. A clear objective is needed to justify, guide and formulate both the Call, and any submissions. But one has not been provided. Under the TFEU the Commission's essential objective and justification of the Call should be to promote the welfare of European peoples. The burden must then be on the Commission to justify the call on these terms, with evidence evaluating competition and regulatory risks. There are better means for achieving its objective than a call for submissions, which has inevitably just triggered a lobbying process for more regulation.
- 2) Evidence – There is a lack of prima facie evidence of a threat to the welfare of European citizens to justify the call in the first place. The call for contributions thus appears premature given lack of evidence. It also signals an inclination to action (including regulation) that is not evidence based.
- 3) Market definition – No definition is provided of the "Digital Markets" referred to in the justification for the call to justify, frame and guide the call, let alone any definition of relevant GenAI markets of concern or in focus.
- 4) Market Power – No clear theory, let alone evidence of market power is provided to justify the claim that GenAI markets "*present certain characteristics*" that prevent workable competition, or cause market failure, and justify the call. Passing reference is made in brackets to "*(network effects, lack of multi-homing, "tipping")*" but there is no justification of these as barriers to entry to, or as features of GenAI market(s).
- 5) Abuse of market power or Anticompetitive Behaviours - No clear theory or evidence is provided to justify the claim that GenAI markets are likely to lead to

² e.g. see <https://www.reuters.com/technology/microsofts-deal-with-mistral-ai-faces-eu-scrutiny-2024-02-27/>

“entrenched market positions and potential harmful competition behaviour that is difficult to address afterwards” as alleged to justify the call.

- 6) Regulatory failure – There is no discussion of regulatory failure and regulatory risk in the justification for the call at all. Regulatory failure is common however and often driven by protectionist motivations or justifications that in fact are most likely to contribute or cause problems like
- a) ““entrenched market positions and potential harmful competition behaviour” and
 - b) premature and costly inquiries into GenAI, and then adoption of harmful regulatory interventions that foreclose competition.

The Call will clearly stimulate interest group coalition formation, facilitate regulatory capture, and therefore exacerbate, and accelerate the risk of regulatory failure. This justifies not calling for contributions at such an early stage, and ending the Call before it causes more regulatory problems and harm to consumers than it has been proven it could ever actually avoid.

The emerging markets in Generative AI are highly competitive. They simply do not exhibit the characteristics of markets that require antitrust intervention or supervision. Markets that antitrust authorities should be investigating are those characterised by poor performance slow growth, low productivity and low innovation - not ones characterised by very big increases in productivity and innovation like Gen AI markets. To a significant extent then it seems the Commission is focusing it's anti trust investigative powers on the wrong markets. The focus should be on trying to make poor performing markets perform better by tackling the legal barriers to entry, and inefficient regulation they suffer from.

With AI and digital markets generally, we're looking at probably the most productive part of the economy. Innovation or progress in AI in many cases appears exponential rather than linear. Already the progress in a wide range of applications (e.g., vision, natural language, motion control) over the last 12 months was faster than in the 12 months prior. The level of investment is increasing rapidly. The quality-adjusted cost of sensors is falling exponentially. And the amount of data being generated is increasing exponentially. Generative AI quite simply is not in need of regulatory attention, even if some competitors or users would like to get a better deal through regulation than they can get in a competitive market.

The AI Market is also global. The market is by definition therefore very competitive. If the EU regulates it will create barriers to entry. The regulation will typically just protect and create market power for the domestic firms that benefit. Regulation will also enable abuse of that power by the domestic incumbent. This may come in the form of regulated prices below the globally competitive market price. This will prevent entry or expansion by more efficient firms. The result will be a less efficient outcome that harms EU consumers.

If the Commission regulates it will foreclose the emergence of competition that is certain. Of course there is no doubt a lot of uncertainty about how the GenAI market will evolve. With a wait and see strategy an abuse of market power can always be

regulated ex post. That will not prevent a competitive market emerging, any non-competitive market that does emerge can still be regulated appropriately with more information later

Introduction:

This report responds to the [European Commission's Calls for Contributions on Competition in Virtual Worlds and Generative AI](#), ("The Call"). My response focuses on Competition in Generative AI. The Commission's Call asked respondents to consider a list of 12 questions on Generative AI (GenAI). This response covers all 12 GenAI questions below. The Call notes the questions were provided for orientation only, and that respondents were free to choose on what aspects of the chosen topic(s) they wish to focus. I therefore begin with some introductory comments on

- Clarifying the Objective lying behind the call for contributions
- The stated justification for the Call and
- The Purpose of the Call

that together frame the call, and then turn to my response to each question.

The Call itself notes the Commission issued the Call as "a competition law enforcer to engage in a forward-looking analysis of technology and market trends to identify potential competition issues". The Call was in turn released on the [dedicated webpage of DG Competition](#) with non-confidential versions of the contributions to be published on the DG Competition webpage. It is thus being managed by DG Competition, and is presumably designed to inform the exercise of DG Competition's powers under EU Competition law. I have formulated my response accordingly adopting a competition law and economics perspective on the questions.

Clarifying the Objective and Role of the Commission

It is useful to take a moment at the outset to reflect on the essential or fundamental objective of EU competition law and policy and how it applies to the Commissions regulation of Generative AI markets. The Treaty on the Functioning of the Economic Union (TFEU) explicitly and clearly states in the preamble that the Treaty partners to the TFEU affirmed

"as the essential objective of their efforts, the constant improvements of the living and working conditions of their peoples"

This essential objective can be summarised as the promotion of the welfare of all EU people, or citizens over time. To promote this objective the TFEU enumerates key competition law principles in Articles 101 and 102, and gives the Commission the power to

"investigate cases of suspected infringement of these principles."

This suggests two key requirements or preconditions for the Commissions use of its power to investigate and regulate competition under the TFEU. First it must be shown to be necessary, proportionate and contribute to the essential objective of promoting the welfare of European people over time. Second there must be a "suspected infringement" of the competition law principles to justify a Commission investigation in the first place.

This is reasonable given the inevitable result of competition law regulation is the limitation of fundamental rights, like the rights to private property, freedom of contract and economic initiative that support better living and working conditions for European citizens over time. The EU and Member States thus cannot impose restrictions on the fundamental rights of GenAI creators, investors and workers, unless they are justified by the TFEU's essential objective, and the test of proportionality.

One thus needs to weigh the costs and benefits of allowing or prohibiting certain behaviours relative to the essential objective, and the fundamental rights of the actors. The costs imposed by competition law restrictions of fundamental rights must be outweighed by the collective benefits to EU citizens arising from the protection of the interests promoted by competition law. This requires evidence to establish a *prima facie* case of infringement worthy of investigation, given the alternative uses of the Commission's time and resources. The threat of competition and regulation will act to deter harmful anti-competitive behaviour meantime.

Confirming the need to protect fundamental rights the Call itself notes that "In December 2023, the European Parliament and the Council reached a political agreement on the Commission's proposal for an AI Act ...to ensure that AI is safe and respects fundamental rights, while fostering innovation." The important point about this description of the AI Act is that, like Articles 101 and 102 of the TFEU, the AI Act requires a balancing of the rights and interests of all – including the fundamental rights of GenAI creators, investors and workers.

In pursuit of the essential objective of the TFEU, namely the promotion of the welfare of European peoples or citizens, the requisite cost benefit analysis must distinguish between two often competing potential impacts or consequences of regulation.

- First is the impact of competition law on the total welfare of EU citizens derived from their "living and working conditions", the "size of the pie", total value, wealth and income. This requires regulation that ensures allocative productive and innovative efficiency, or that resources are allocated to their most valuable uses, output is produced at least cost, and innovation occurs optimally; and
- Second the impact of competition law on the distribution of welfare, value, wealth, income or "living and working conditions". This requires regulation that avoids pure redistribution of welfare or the taking of fundamental rights of some citizens and their transfer by force to others. This is only likely to encourage unproductive rent seeking and have a net negative impact on the welfare of European citizens over time. This principle is captured in the common adage that competition law should protect competition - not competitors.

As in other areas then, like the AI Act, it is important that the Commissions use of competition law to regulate Generative AI does not lead to regulatory decisions being subverted solely to the re-distribution of wealth to narrow political interests,

for short run political gain. This risk is greatest when competition law and policy is distorted to the benefit of particular domestic firms by the adoption of misguided “local champion” or “local industry” policies aimed at “picking winners”. The latter approaches are clearly to the detriment of the wider public interest in the total welfare of European peoples or European citizens (or the total size of the pie) over time, they forgo efficiency, sustainable economic growth and improvements in the living and working conditions of European peoples. In short the regulation of Generative AI needs to maximise the size of the pie over time, while minimising the reward to costly conflicts over its distribution. The regulation of Generative AI thus needs to minimise the risk that consumers, and local businesses pay the price of inefficient or higher cost/lower value services, when competitive market processes based on clear property rights and freedom of contract are distorted by a poorly conceived overlay of competition law.

Competition law policies based on ill-defined concepts and goals that offer hidden benefits to a particular business model, or “local champion” and protect them from legitimate foreign competition in a non-transparent manner are detrimental to political accountability, democracy and to promoting economic efficiency and growth. As we shall see however, there is increasing reason to doubt certain ill-defined concepts and economic approaches that are being used to support greater and greater competition law interventions in so-called digital markets. These ill-defined concepts and approaches have become orthodoxy in competition law in the past 30 years, appear increasingly perhaps unintentionally, to be serving re-distributional objectives, and interests, benefiting some, albeit at the greater expense of other Europeans. As we shall see these poorly defined concepts and approaches are ill suited to the task of promoting better living and working conditions for all Europeans.

In short the right instrument, properly conceived needs to be assigned to the right objective. Competition law is a legal instrument for promoting total welfare, wealth, incomes, or “the living and working conditions” of all EU citizens over time through more competitive and efficient markets. Competition law should not be used for redistribution, and certainly not the protection of domestic firms from competition from domestic or foreign competitors, which benefits no-one other than the protected domestic firm(s). Redistribution objectives are better served through the use of tax-welfare policies, which more transparently transfer wealth by taxing some in order to benefit or spend on others – to the extent they can be justified – rather than through competition law. The reliance on tax and expenditure policies to redistribute wealth is more explicit, transparent, accountable, cost effective, efficient and equitable. It is important then to be careful the regulation of Generative AI through competition law facilitates the creation of economic value rather than efforts to re-distribute wealth through the political system. The latter only encourages so called rent seeking, or a waste of resources on lobbying to capture fundamental rights from others, and creates regulatory risk and uncertainty that discourages investment and innovation, and distorts competition, reducing total welfare of EU citizens over time as a result.

Justification for the Call and Investigations

The stated justification for the call for contributions is the Commission's claim in the Call Guidelines that:

"It has become clear in the past that digital markets can ... present certain characteristics (network effects, lack of multi-homing, "tipping"), which can result in entrenched market positions and potential harmful competition behaviour *that is difficult to address afterwards*. "

"Therefore, it appears opportune for the Commission as a competition law enforcer to engage in a forward-looking analysis of technology and market trends *to identify potential competition issues that may arise in these fields*"

In its announcement of the Calls the Commission further specifically noted

"..the European Commission is looking into some of the agreements that have been concluded between large digital market players and generative AI developers and providers. The European Commission is *investigating* the impact of these partnerships on market dynamics."

Finally, the European Commission is *checking* whether Microsoft's investment in OpenAI might be reviewable under the EU Merger Regulation."

Taking the above together, my response to the Call is premised on the assumption that the DG Commission has already commenced a general investigation into competition issues in GenAI through the call, and two specific investigations: first into "*agreements that have been concluded between large digital market players and generative AI developers and providers*"; and the second into "*whether Microsoft's investment in OpenAI might be reviewable under the EU Merger Regulation*".

The above implies that Commission has commenced what seems to me to be very early investigations into the development of GenAI markets and competition in Europe which is in its very early stages of development. This seems to be justified in the call because of the risk of competition issues that may arise in the future "*that is difficult to address afterwards*."

I have several concerns with this justification for the Call and the DG Competition Investigations that I discuss more generally in detail in my response to the questions below. Fundamentally the conclusion I draw from the evidence is contrary to what the EU claims. I believe it is not at all "clear... that digital markets ... present certain characteristics which can result in harmful competition behaviour *that is difficult to address afterwards*" This claimed "general rule" is simply an assumption. There is no evidence for the claim that there are competition risks in digital markets that are difficult to address afterwards. It appears to be an opinion not based in fact but rather ill conceived untested and even untestable concepts and theories . What

is worse, it does not follow that any such “general rule” if true would apply to GenAI markets.

There are four key problems with this justification for the DG Commission’s early investigation in summary;

First a fundamental requirement of any justification of a competition law investigation is detailed analysis of market definition first, and then of competitive conditions, and then competitive behaviours in the specifically defined markets. The concept of “*digital markets*” is too vague a market concept or definition to draw on, or be of use in EU competition law analysis, or to justify the call and early investigations. The concept of digital markets is from one perspective, simply too broad a market definition to provide evidence at all, let alone of relevance to GenAI markets. Digital markets from this perspective is just a loose universal set of markets that in fact covers all markets - as practically all markets are now digital in developed economies like the EU’s. From another perspective “digital markets” is an empty set from the point of view of competition law. As all major so called digital markets involve major non-digital or physical elements. Indeed the reality is that the markets being served, and the services being provided by the tech firms that are the target of so called “digital market” investigations are better described using terms like intermediation, communications, or storage markets or services, which of course have a digital elements - like other markets and services (Health, transport, energy) - since the advent, ubiquitous adoption and growth of networked computer systems.

Second the justification not only refers to the vague idea of “digital markets” but to “certain characteristics (network effects, lack of multi-homing, “tipping”) which can result in... harmful competition behaviour.” As we discuss below these three listed characteristics (network effects, lack of multi-homing, “tipping”) are not unique to the imagined “digital markets”, and do not clearly provide a justification for competition law regulation, nor therefore a call for contributions, or an investigation into GenAI markets, They are generally quite vague concepts, used in what is increasingly being seen to be flawed economic theories of harm, competitive conditions and anticompetitive behaviour in competition law cases. As we shall see the three alleged characteristics have weak logical and empirical foundations. Their existence and impacts are not testable or are untested empirically. As we shall see, they are largely irrelevant to competition law analysis and enforcement given the state and foreseeable trajectory of GenAI markets.

Third the justification refers to “harmful competition behaviour *that is difficult to address afterwards.*” This “difficult to address” or costly to reverse claim is an unhelpful, and speculative if not incorrect general claim, and does not justify the call or investigations either. Harmful competition behaviour is never difficult to address later. Indeed the whole foundation of competition law is that it is best to address “harmful competition behaviour” afterwards - or once it is proven to occur. There is no “pre-crime” in competition law. The law is designed to address behaviour – but not all behaviour, only behaviour that has adverse effects on others. But the harm to others has to be proven, it cannot be assumed. Harmful competition is further not

difficult to address, or reverse later. It just needs to be proven, with compensation paid to victims preferably, and a penalty or fine component added, if the proven harmful behaviour needs to be deterred, and an injunction if it needs to be prevented. More importantly if one is going to protect fundamental rights, harmful competition behaviour can only be dealt with later once proven. Otherwise one has overreach, and denial of fundamental rights using the power of the state, and the risk of false positives under the guise of competition law – which potentially has no limits. People are entitled to exercise their fundamental rights and are to be assumed innocent till proven guilty to an appropriate standard of proof before being punished for doing something.

Fourth, unlike harmful competition, *harmful regulation* is instead and in fact what is difficult to address later. Ideal regulation (IR) achieves the best possible social optimum. Harmful regulation (HR) involves an error or divergence from the ideal. The social cost of such error can be very high ($SC = c(IR-HR)$). The clearest example of harmful regulation is when behaviour is regulated because it held to be anti-competitive when it is not. This deters competition irreparably, creating a legal barrier to entry and limiting in market pro-competitive behaviours. Harmful competition law regulation leads to significant non-reversible costs - whereas without regulation anti-competitive behaviours can be limited by competition, even avoided, mitigated and reversed by market competition. The costs of harmful regulation cannot be corrected by market competition. Harmful regulation instead irreversibly limits competition or is harmful to market competition. One should be more worried of non-reversible harmful regulation than harmful competition in any market. When a unilateral act of a firm is regulated, declared anti-competitive and punished *in error*, the irreversible harm is that a pro-competitive innovation or initiative of that firm and others will be terminated, and the opportunity of first mover advantage that justified investment in the innovation lost forever. This cannot be recovered. The harmful regulation and its competitive effects can hardly even be measured, given the loss of a counterfactual, let alone reversed. Similarly with harmful regulation of a pro-competitive contractual arrangement, joint venture or partnership agreement that supports relationship specific investment and innovation by a firm. The investment or innovation supported by the contract or agreement will not proceed and any cost already incurred will be lost forever, while any stranded asset has to be written down. Similarly with harmful regulation of a pro-competitive merger, acquisition, or takeover that justifies greater relationship specific investments and innovations by firms. If the merger, acquisition or takeover has to be reversed this will mean that the investment or innovation will be foregone and may not occur forever. On the regulatory side, the regulatory process itself involves directly unproductive expenditures, including the time of skilled and senior players that also cannot be recovered once a harmful regulatory process is completed. The non-reversible direct and opportunity costs of harmful regulation are enormous.

In short competition law acts best as a deterrent, as a threat. The last thing one should want to do is use it early – ostensibly in a preventative manner. It is like a sledgehammer not a scalpel. Once used the Regulator becomes entangled in the need for ever more regulation. Even as a deterrent or threat however competition

law can have harmful chilling effects on investment, innovation and competition. This is because of regulatory risk. Regulatory processes are subject to the information problems and poor incentives of regulators that create regulatory risk and deter investment. The dimensions or sources of regulatory risk include: the frequency of regulation, systematic bias (in particular to over-regulation or regulatory creep and entanglement over time), and the problems of variance in regulation, and fundamental uncertainty in regulation, around an increasing trend in regulation over time.

In general and in short then, the EU's justification for the call appears premature, is not clear, lacks an evidence base, is too vague and general, and does not provide a sound foundation for the call. It seems to signal a predisposition to early regulation, or that the Commission is open to early competition law regulation of GenAI i.e. a bias. No prima facie evidence to justify an inquiry is provided, as presumably it could not be found. It is thus not clear that the Commission has reasonable grounds, or "suspicion" to justify its investigation. The Call appears likely however to trigger, foster and stimulate lobbying, and enhance momentum towards more regulation, by those that will inevitably seek to acquire or take, and benefit from the fundamental rights of others, through competition law.

Premature Commission investigations like this, that lack a clear evidence base, and are not narrowly focused on well defined specific markets and proven specific behaviours, threaten fundamental rights of EU citizens, and will have a chilling effect on investment and innovation that are critical to competition and therefore to promoting the welfare of European citizens.

The Purpose of the Call

The Commission states in the Call that

The purpose of these calls for contributions is to gather specific information and views in relation to competition aspects from regulatory experts, academia, industry and consumer organisations.

The Commission may organise a workshop with relevant stakeholders to discuss these issues further building on the responses to the consultation.

The stated purpose of the call then is to gather information and it may be followed by workshops. As noted however, the overarching purpose of the Commission should be to maximise the welfare of European consumers, and any investigations should be based on reasonable prima facie evidence or "suspected infringement" It is not responsible or cost effective to engage in "a fishing expedition" about such important matters. Moreover the DG Competition has already indicated it has commenced investigations again without sufficient prima facie evidence it would seem.

There is no prima facie evidence that relevant GenAI markets are not competitive and causing harm to European citizens. There is no prima facie evidence therefore that the behaviours being observed are competitive behaviours. Indeed on the contrary Gen AI markets are at a very early stage of rapid development and appear clearly competitive and beneficial to consumers. It does not require a call for contributions from regulatory experts, academia, industry, and consumer organisations to see this. Given the newness of GenAI markets, and their fast evolution however, little is known of Gen AI markets, and what is known is quickly out of date. The call for contributions must thus simply be “a call for opinions”, or “call for positions” or for “predictions about the future” that will quickly be out of date. It will require people to take or express a position that is not based on fact, encouraging adversarial debate, and only create more noise than light.

The problem with gathering information now is there is too little evidence, facts or information on the market, as it is too young. There is quite simply a lack of evidence - it is therefore too early to act. As we shall see the call for contributions is further not specific, relevant or clear enough in the information sought. The expected benefit of the call and further inquiry therefore is thus limited. The information that will be gathered will instead be poor, and biased - based on opinion and past experience of regulation. The information gathering process will also be enormously costly. The army of lobbyists, litigators, and experts in tech companies, law firms, consultancies, other professional services firms, universities, think tanks, political and community interest groups and non-profit organisations will be activated by the call. This is illustrated by the US Copyright Offices call for submissions or responses to a list of questions on Copyright and AI which gave rise to over 10,000 submission compared to a previous inquiry maximum in the 100's.

The reality then is that the information sought and needed on future competition issues to justify regulation in GenAI markets is currently not available. The market needs to be allowed to evolve for information on the future competitive state of the GenAI market to be revealed. The relevant information required for good regulatory decision-making is both exogenous (it will come when it comes) and endogenous (it is a by-product of allowing the market to evolve) - and it is costly and takes time to obtain and interpret. The Call for contributions at this stage just increases the likelihood and scope for early misguided regulation, based on poor information. This adverse risk of poor regulation will then be priced into the market, and hurt it's development. When the regulation occurs it will foreclose competition, the evolution of the market and the information required to justify regulation ever emerging.

It would be better to adopt a “wait and see” strategy and postpone further inquiry indefinitely. GenAI market(s) are undoubtedly competitive at this early stage. They may moreover prove to remain competitive for a very long time if not forever. Any problem behaviours will be addressed by market competition meantime. The error cost of later regulation will as a result be minimal, and limited by competition. The premature commencement and introduction of regulation will however clearly foreclose the possibility of the market(s) remaining competitive, and prevent the

Commission ever knowing if the markets might have become more competitive in Europe. A “wait and see” strategy would thus instead let Gen AI markets evolve and at most pose a low error cost. The real option to regulate later, when more is known, and if necessary would then remain, while waiting would let competition take place, and the market evolve meantime, subject to the threat of regulation, and consequently let information be revealed first. Proceeding as the Commission is proceeding on an assumption that GenAI markets are subject to competition risks that require early intervention is likely to be enormously costly, as it will foreclose the market reaching its full competitive potential. It is too early to commence regulatory processes like this Call. The Commission’s apparent move to early regulation of GenAI appears premature.

This current Call for contributions will just create noise, more uncertainty, unproductive rent seeking, and in all likelihood lead to premature regulation that forecloses competition. As a result it is unlikely to contribute to the Commission’s overarching purpose to maximise the welfare of European citizens over time. Instead it is likely to be the first step in a now inevitable and costly regulatory process that is likely to foreclose competition and cause confusion along the way. There are better processes for gathering information of value, including funding well designed systematic empirical research, while waiting for a complaint that establishes prima facie evidence of both a market competition problem, and a specific anti-competitive behaviour problem.

If further inquiry is postponed and premature regulation avoided, the threat of regulation would continue to hang over the player’s heads and have a positive pro-competitive influence on their behaviour. The option to regulate would remain, and could be used as soon as any proven anti-competitive GenAI market behaviour emerged. Then and only then should the market be regulated – i.e. when actual anti-competitive behaviour can be proven. That is not now. In the interest of European citizens it is best to wait and see, and adopt a light-handed approach to AI regulation meantime to let the intense competition associated with the creation of a new market proceed until a problem is proven to exist. Premature regulation needs to be avoided.

Question 1 Market Definition

What are the main components (i.e., inputs) necessary to build, train, deploy and distribute generative AI systems? Please explain the importance of these components

As noted the purported purpose of the call for contributions on Generative AI Systems (GenAI), is “to gather specific information and views in relation to competition aspects” of Gen AI. Competition occurs in markets and so any discussion of competition needs to be framed within a market definition. As noted in the introduction the Commission appears to be engaging in a form of early intervention on competition law grounds. The justification for the Call appears to be a concern with the emergence of “entrenched market positions and potential harmful

competition behaviour *that is difficult to address afterwards*” in GenAI markets. To have an informed and expert discussion whether GenAI markets pose such competition risks justifying such an investigation requires one to first define the relevant markets in which competition, market positions and harmful behaviours can be assessed.

For the purpose of competition analysis and responding to the call I do not find it useful to frame my discussion using concepts like “components” or “systems”, which are used in question 1. Similarly for the purpose of competition analysis the request to “explain the importance of ... components” was also unclear to me. I find the terms “components” and “systems” unclear and unhelpful for the purpose of the competition analysis. I will instead focus instead on market definition under this question. I will however focus more on input markets to GenAI, given the use of the wider term “inputs” in brackets in the first sentence of the question in relation to components. My response to this question will thus focus on competition in key input markets. It can be understood to subsume sub markets for GenAI “components” or “systems”, but I avoid formulating my response using or focusing on these terms.

In this section I will broadly sketch how market definition should proceed, outline the likely GenAI markets, and the directions for further analysis implicit in the questions being asked in the Call. I shall further briefly outline an answer to the second part of question one, or evaluate the “importance” of relevant GenAI markets by their potential ultimate impact on the living or working arrangements or welfare of EU citizens. This depends on the degree of competition in the market and existing “regulation” by private law, which together determines the likely extent of harm, if any, and the need for any investigation, and public regulation by the Commission. One cannot justify investigation and public regulation of GenAI markets by competition law, before defining the relevant markets and assessing the extent of competition and the likely harm from them, especially given the role that private regulation plays in limiting any scope for harm, including private law of property, contract, tort etc. I believe the Commission’s assumption that there is a risk of that “entrenched market positions and potential harmful competition behaviour that is difficult to address afterwards” implying a need for ex-ante regulation is premature until further work is done on market definition, and then on the scope for market failure, the role of private law, and scope for public regulatory failure. In this section I will thus seek to outline only a part of the analysis required to determine the “importance” of GenAI markets. To determine the “importance” of GenAI markets in terms of public regulation one need to consider the answer to other questions as a whole, I believe we need to do more analysis and wait and see meantime.

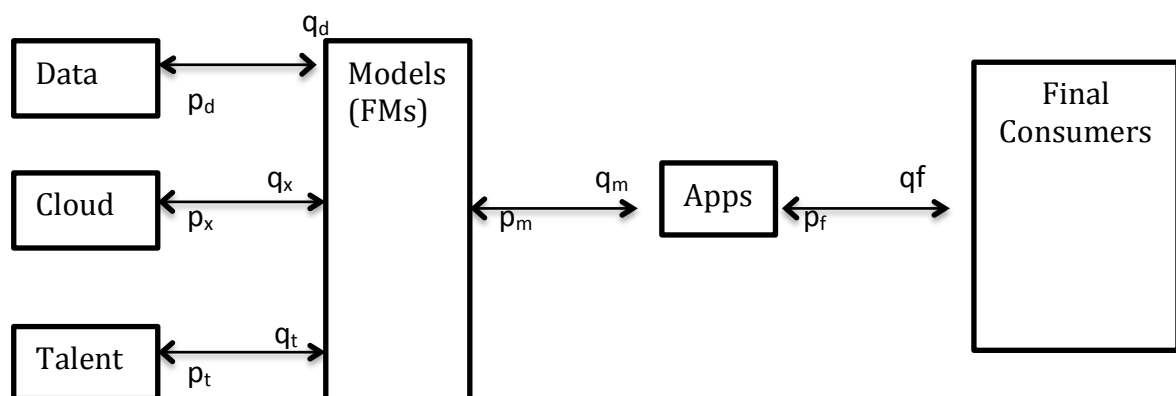
The accepted way to define relevant markets for competition analysis is to first start with a narrow market definition. This involves a focus on a specific *service or product* of specific relevant GenAI firms, performing particular *functions* in the value chain (e.g. at wholesale or retail) in a narrow *geography*. Given a narrow market definition involving a particular GenAI product or service, performing a particular function, in a specific location, one then tests whether it is competitive using the so-called small

non-transitory increase in price (SNIP) test. For a particular product this test examines whether a SNIP (say a 5% price rise) in the relevant product or service would trigger competitive demand and/or supply responses or substitution behaviours involving other products, services, functional stages or geographies. If so, then the market definition would need to be widened to capture those other relevant competitive forces at play. Time is also a relevant dimension to assessing the intensity of competitive forces, in that dynamic competition may emerge over time from new entrants, products, services or locations over time in response to the price rise depending on the behaviour of incumbents.

There is a vast array or set of existing, new, and potential, vertical and horizontal products, services and markets related to GenAI ,that will evolve and proliferate over time. All one can do at this stage is outline them broadly. The relevant and more important emerging GenAI markets include:

1. Markets for GenAI inputs, including capital of various kinds (tangible and intangible) labour (human capital), and land, but the most important for competition appear to be
 - a. Data content
 - b. Cloud services
 - c. Talent and expertise
2. Markets for Foundation Models (FMs) - which combine the above inputs
3. Markets for Downstream products and services that use FMs, such as chat-bots and AI assistants, where competition occurs at the level of the individual application (app)

The diagram below provides a simple visual representation of the likely value chain and determination of relevant prices (p) and quantities (q) in the GenAI markets identified above in which relevant SNIP tests for market definition could be applied. The relevant market players' roles are shown in the text boxes from left to right, starting with initial input providers on the extreme left and ending with the final consumer on the extreme right. The likely market exchanges between relevant players at each stage in the value chain is then shown by two-arrows between the players representing the exchange of products and services (q) for a price (p) in each market.



Thus on the extreme left of the diagram three two-way arrows are used to represent the exchange in the three GenAI *input markets* of services (q) for a price (p) in each of for data (d), cloud (x), and talent (t) services that are required for training of foundation models (FMs) by GenAI firms involved in the creation of FMs shown in the first tall thin textbox from the left, simply entitled Models (FMs).

The next two-way arrow to the right then represents the intermediate market exchange of GenAI FMs services (q_m) for a price (p_m) between GenAI Model firms and GenAI Apps firms. While the final arrow on the extreme right represents market exchange between Gen AI Apps firms and final consumers in the final consumer market.

The ultimate value driving competition is sourced in the final consumer markets, these are not even mentioned in the question. The Commission's focus in the question instead appears to be competition in markets for inputs or markets at the beginning of the value chain "i.e., inputs necessary to build, train, deploy and distribute generative AI". The wide range of "important" Gen AI markets is however only partially captured by this focus on only input markets. The final customer or consumer markets are ultimately the most important – but they are in the very early stages of development, and current investments in GenAI are based on guesswork about how they will evolve and respond.

Before considering further analysis appropriate to the above listed product and service markets it is useful to first discuss two other dimensions to these market's definition. First is geography. The second is time. On geography a key first point is that GenAI markets are clearly global, as a simple SNIP in a small GenAi market will generate substitution to and from other geographic markets on both the demand and supply side. The markets for Data, cloud, talent, FMs and Apps are all clearly global - and therefore highly competitive. Second one has to consider time. For reasons outlined later GenAI appears likely to create considerable value through out the economic system and considerable improvements in the living and working conditions of European citizens. This high expected value from GenAi over time is likely to mean all of the GenAI markets are and will be highly competitive with more investment and innovation, new entrants, new products and new ways of doing business emerging for the foreseeable future, rapid entry and expansion in the GenAI markets has occurred and is occurring rapidly over time. One cannot thus consider the market and therefore static competitive conditions as they exist today. The analysis has to be dynamic – evolutionary.

The fundamental problem probably driving the lack of clear market definition in the call and it's questions, is the fact that GenAi is at such an early stage of development. Which Market? It is simply not possible to talk intelligently or reasonably in detail about market definition applying the SNIP test, let alone about the nature of competition that will emerge over time as the market matures. This poses major risks of regulatory failure from the call. A key reason for this risk of regulatory failure is that the GenAI market(s) that exist today will inevitably be only small, even tiny when compared to where GenAI markets(s) are likely to end up - and compared to

other more mature markets in the economy that regulators are used to, and therefore biased by. The existing market will thus not only inevitably look small, but as a result also inevitably look like it is dominated by a small number of players, because it is so small, and so immature – leading to the risk of *premature* conclusions of dominance, and *premature regulation*.

A new approach to competition is required to new developments like GenAI – and that is a more favourable evolutionary approach, or one that takes an evolutionary perspective, that allows time for the market to mature and for more information and less uncertainty to prevail, before regulation is undertaken or even considered given the risk of biased regulatory priors. The threat of regulation can be used meantime to weaken the temptation of anti-competitive behaviour. There simply is no guarantee that this new market will evolve like existing markets in the economy that may have become dominated by a few firms owing to barriers to entry. Which we turn to in the next question.

Given our focus in this question is on market definition (for the purpose of analysing competition in the markets in later questions), it is useful to address a number of matters often raised at the market definition stage that have created serious errors and problems in competition law case involving what the EU describes as existing “digital markets”, These are the problem referred to by the Commission in the introduction to the Call questions as

- Multisided markets and
- Network effects and
- Tipping

For reasons outlined below, the term “multi-sided markets” is poorly suited for analysis of market definition in competition law cases. It is a term of art in economics that carries with it a high degree of uncertainty of concept. First of all the term multi-sided platforms or multi-sided markets are terms that are often used interchangeably, but which are in fact not identical, and this needs to be avoided going forward. It is not clear the term multi-side markets is helpful, and it may be the term that needs to be dropped. The second problem with the use of these terms in market definition is that they are both used to describe situations when different sides (demand and/or supply side) of a platform or market are said to have distinct interdependencies, links or nexus between them. These interdependencies are variously described as “network effects”, “network externalities”, “two-way effects”, “direct network effects”, “indirect network effects”, “uni-directional effects” and “bi-directional effects. This second problem is twofold. First the term “externalities” is commonly used but is not at all applicable to relevant market analysis - and should be dropped. We will have more to say on the role of the variously named network “effects” below. The problem with the term externalities is that they are just effects between parties that have not been contracted for, or not internalised through proprietary solutions such as cross ownership, or by other institutional arrangements. In the absence of transaction costs, externalities will always be internalised, so its is transaction costs and how they are affected by institutional

arrangements, or a market's operation, not externalities per that are the best focus of analysis. I will drop reference to externalities going forward.

We will consider the remaining interdependencies and effects, and the manner in which they relate (or do not relate) to market definition in this section and to barriers to entry in the next section. As we shall see they all boil down to the same fundamental and general phenomena long recognised in economics, and all best simply called scale economies, that may arise both in consumption and in production. These interdependencies or scale economies have long been known in economics to also lead to it being efficient for a market to be served by one or a few firms. What is relatively new is that the "inflection points" when such scale economies kick in have been given a new term – i.e. "tipping" points. Again these tipping points are not a new concept in economics they are just a new term for inflection points in mathematical economic models. What is new is the transformation wrought by digital technology over the past 30 years, which has brought with it the inclination to introduce new terms, for old phenomenon.

Thus the terms multi-sided markets, network effects and tipping are not new ideas, just newish terms, i.e. just old wine in new bottles. For this reason the terms are best dropped and replaced by fewer more fundamental terms, to reduce terminological clutter or redundancy. It is also important not to conflate the separate issues raised by each of the terms.

My conclusion is that these concepts of a multi-sided market, and their associated network interdependencies, and multi-sided platforms are best not considered as part of the market definition process that is required before one can then proceed to the examination of competition issues. Instead each "side" of a "market" or "platform" should continue to be considered separately for the purpose of market definition in competition law matters, with each involving a separate narrow service, or product and a separate market that needs to be defined. The market definition process can proceed by using separate markets for the albeit interrelated products, and despite the interdependencies between them (complementarities), as the focus is on substitution effects, not complementarity effects for the purpose of market definition. This is what has been, and is properly done with related input and output markets for the same product. Input and output markets for the same product are related but are analysed separately - so too should the multisided market. It should be broken into the smaller markets for each identified "side", and multiple separate but related markets defined and analysed separately.

It is useful to begin with a description of multisided platforms, that supply two or more distinct groups of distinct user groups or customers who value each other's participation or provide each other with so called "network" benefits or effects. Any organization that enables direct interactions between two or more distinct types of affiliated customers can be called multi-sided platforms. This might be

- A pure passive communications platform enabling platform users to communicate. This is classically said to be a telephone service where people can call each other.

- A matching platform is a more active platform that provides an intermediary service

With passive platform there may be network benefits amongst users. If one starts with only one person on say a telephone network, then when a friend of theirs joins that benefits the incumbent, and similarly if another one of their common friends joins etc. These effects are typically called *direct network effects*. There are however limits to friendship groups, and therefore there can be diminishing returns as network benefits diminish to being close to zero or even negative when e.g. a “spammer” joins. Thus there can be “congestion” effects or negative network effects

A matching service (like ride-hailing apps such as Lyft and Uber) may provide a service to two (or more) groups of users of the platform (drivers, passengers and credit card companies). In other words the groups decisions on the use of the platform are interdependent. These “network” effects are typically described as *indirect network effects*. For example waiting times for online ride hailing may fall as the number of drivers on an app increases.

Multisided platforms may then charge all the different groups of users for their services, and may even price discriminate between user groups. For example a dating app may provide a service to both heterosexual men and women, but may charge less for women. The price charged a user may thus be zero, or even negative depending on the network effects on the platform. The point is however that how well the platform internalises the network effects will determine their competitive success. Thus multi-sided platform models are helpful for a business for the purpose of business analysis and optimising their business – but not for the purpose of market definition analysis in a competition law case

Before talking further about so-called multisided markets and their usefulness in market definition it is important to note. All GenAI markets identified in the diagram above are interdependent or interrelated. To analyse competition in the markets identified above, and how prices and quantities will be determined therefore requires so-called partial equilibrium analysis where the factors that might affect equilibrium in “other” markets (other than the market being analysed) are held constant. The firms being analysed in any such specific market will of course have to manage it’s relationships in the multiple markets. For example if we are analysing competition in the intermediate market for GenAI models’ services, the firms’ selling the GenAI services will

- Sell or supply their services to the apps markets (shown on the right) – and there may be many distinct subsets of these, including apps markets for health, energy etc. The firms will also however
- Buy or demand services in their input markets – and again there may be many of these (e.g. for data or cloud or talent services).

The specific markets are however all interdependent. Changes in the price (p) or quantity (q) transacted in one market will affect prices and quantities in all other markets. General equilibrium analysis can be used to analyse how competition will

lead to a general equilibrium where a set of stable relative prices will be determined across all markets under certain conditions, including the absence of any change in variables affecting demand or supply, and therefore prices and quantities in equilibrium.

When one is analysing market definition and competition in a particular market however the firms activities in “related markets” is put to one-side, it is not the focus. The analysis proceeds on the assumption used is “ceteris paribus” - or “all else equal”. A slight wrinkle in “partial equilibrium” analysis of competition in a specific market arises when one has so-called “multisided platforms”, that no doubt already exist and/or are predicted to emerge in GenAI markets.

As noted multisided platforms supply two or more distinct groups of distinct user groups or customers who value each other's participation or provide each other with so called “network” benefits or effects. Any organization that enables direct interactions between two or more distinct types of affiliated customers can be called multi-sided platforms. Analysing competition in markets involving multi-sided platforms does not however require multi-market analysis be conducted at once. As with input and output markets partial equilibrium analysis of the market for each service it provides can and should be analysed separately.

More general equilibrium or wider effects or interdependencies or network effects can and should be considered in later stages in the analysis of competitive conditions and harm. This is what I shall do, that I now defer further consideration of multi-sided platforms and network effects to later sections, when discussing barriers to entry, competitive conditions, behaviour and harm. I drop any further reference to multi-sided markets at all to avoid confusion. The problem is that as one moves from a single market to multi market to general equilibrium analysis the more complex the problem and the greater the likelihood of regulatory error.

Focusing on focal products narrowly improves the analysis of market definition, and the quality of the law enforcement and policy-making. Going from analysing narrow markets for products that are close substitutes using the SNIP test, to considering multiple markets simultaneously, poses increasing information costs and analysis costs and scope for errors. It assumes the platform being analysed and the competition regulator can understand and control multiple markets simultaneously better than market competition, and looks strangely like a path to assuming the competition regulator can be an omniscient economy wide central planner, and the familiar mistakes that inclination has engendered in the past.

Question 2 Barriers to entry and expansion

What are the main barriers to entry and expansion for the provision, distribution or integration of generative AI systems and/or components, including AI models? Please indicate to which components they relate.

Once again informed and expert discussion of “the main barriers to entry and expansion” with GenAI raised by this question requires one to define key relevant terms including

- A definition of the relevant markets where such barriers may arise.
- A definition of what qualifies as a barrier to entry

I discuss each of these two points in response to this question 2 below.

1) Defining the Relevant Markets

I identified in broad outline the relevant markets worth considering in question 1 above. I will frame my answer this question using that outline of markets I do not focus on markets for the activities Question 2 focuses its concerns on namely

“provision, distribution or integration”

It is not clear how these terms relate to the specific markets we have defined in question 1, nor how they can be used to create a map of relevant markets to form the basis for a discussion of BTE. For example it is not clear what distinction is being drawn here between provision and distribution. The distinction drawn normally is between the production of a specific output, and the distribution service used to distribute it. It is not clear whether “provision” refers to the production stage, and providing output from production for sale in a wholesale market for example, while perhaps distribution refers to the separate and later distribution services of intermediaries involving value add at later retail stages. There can clearly be wholesale markets for outputs of production, and markets for retail distribution service. Even if it were clear what was meant by the reference to provision and distribution it would still not be clear specifically what the question then relates to in terms of the product or service being provided or distributed when it says “generative AI systems and/or components, including AI models?”

Even less clear is what “integration” refers to, unless it is mergers, or other forms of horizontal and vertical integration across markets within firms. But the latter does not necessarily imply integration of markets. The markets will remain separate even though there may be firms operating in each in common ownership. An alternative integration concern might be with markets for integration, which may be markets for firm control or mergers and acquisitions markets. The reference to “generative AI systems and/or components, including AI models” is again not helpful for framing competition in terms of markets, and therefore identifying barriers to market entry and expansion into the many different specific GenAI markets. Although it might suggest the reference to “integration” is to interoperability discussed later.

2) Defining Relevant Barriers to entry and expansion

In short until relevant markets are better defined, the very existence, let alone nature and extent of barriers to entry and expansion cannot be reliably discussed yet

- nor used to support regulation of GenAI. Having said that the preamble to the questionnaire seems to show a bias to presuming barriers to entry and expansion exist where it states

It has become clear in the past that digital markets can present certain characteristics (network effects, lack of multi-homing, “tipping”), which can result in entrenched market positions and potential harmful competition behaviour that is difficult to address afterwards.”

This paragraph seems to assume it is clear that barriers to entry and expansion are not only possible, but even likely with GenAI. The reasons identified for this assumption appear to be certain assumed characteristics namely “network effects”, “lack of multi homing” and “tipping”. The Commission also seems to assume that these characteristics pose risks of potential harmful competition behaviour that would be “difficult to address afterwards” or through ex-post regulation, implying a need for possible early before the event, or ex-ante regulation. I have already outlined reasons why harmful competition behaviour will not be difficult to address later and indeed should only be addressed later if such behaviour is proven. This was done in my review of the Commission’s justification for the call

But the three characteristics cited as the cause for concern (network effects, lack of multi-homing, “tipping”), are not best understood as involving barriers to entry that are relevant to regulatory policy. They are better understood to describe examples of a more basic and *beneficial* economic phenomenon - namely economies of scale that can theoretically occur either in consumption or production and can exist in all markets. The three characteristics all relate to economies of scale and therefore go to an analysis of harm, or benefits and costs - not to an analysis of barriers to entry

Thus as noted in relation to question 1, economies of scale in consumption or demand-side economies of scale include direct network and indirect network effects. Direct network effects are economies of scale in consumption that arise when an additional user benefits existing users, meaning that adoption of a product by different users is complementary. Indirect (or cross-group) network effects arise when there are at least two different customer groups that are interdependent, and the utility of at least one group grows as the other group(s) grow. Both these types of economies of scale in consumption in turn may lead to increased numbers of consumers attaching to one firm and “a tipping” point where most or all consumers treat that firm as their “home” platform and do not shop around (“lack of multi-homing” or “single homing”). Economies of scale in production may also exist with fixed costs which can be spread over a greater output, reducing the average costs of production, or the cost per person, and again increased numbers of consumers attaching to one firm over time.

Thus one can simplify the Commission’s reference to these three characteristics (“lack of multi-homing” with “single homing”). by simply referring to economies of scale – which may involve scale economies in consumption and/or production economies – i.e. either or both, and not one or the other. The first point to note then

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

In other words economies of scale in production and/or consumption (network effects) can lead to “tipping points” where the economies of scale “kick in”, or start to be fully realised. Depending on the extent of economies of scale occurring in any one platform beyond the tipping point, it may be efficient for consumers or producers (users more general) on a multi-sided platform service to increasingly attach to larger platforms or firms, and perhaps stop switching between them, and become loyal to one platform. If economies of scale are limited beyond any tipping point (because of congestion or diseconomies of scale) it may be efficient for markets to emerge with some consumers switching (or “multi-homing”) and some consumers not switching (“single homing”). Depending on the extent of economies of scale it may be efficient for there to be only 3-4 large platforms, perhaps differentiated in product offering and customer base (like most markets) and “less multi homing”. This may be efficient or due to lower unit cost and price paid, and better matching of product qualities to customer tastes. In an extreme outcome it may be efficient for all or most consumers to “single home” and one platform firm become extremely dominant, if not a sole-seller or a “natural monopolist”.

The “network effects”, “tipping” and consequentially a “lack of multi homing” highlighted in the Call are thus simply by-products of economies of scale – and are more importantly efficient outcomes in markets. The point then is that they are not technically sources of relevant barriers to entry that cause harm and justify regulatory action from a regulatory policy point of view – even though they may be described as barriers to entry in “pop-econ” terms by less efficient providers. No doubt, where there is potential for significant economies of scale, a small-scale firm will be relatively less efficient, and therefore less able to compete and deliver service at a lower price than an incumbent larger scale firm. The scale economies of the larger firm may then be said to “deter the entry or expansion” of a rational small firm. But economies of scale is not a barrier to competition or a “barrier to entry or expansion” relevant to total societal welfare - or a competition regulator.

Simple economies of scale however are not relevant barriers to entry for competition law analysis. To realise economies of scale an incumbent would simply have had to invest to get passed any tipping point to fully realise network effects and production cost economies and encourage consumers to happily single home with them. But this is what a new entrant will have had to do too. Both parties face this challenge. The challenge is not “unfair” it is just a reality – given the fixed costs and network effects of business. To regulate to protect and enable a less efficient smaller scale firm expand or enter the market e.g. by requiring an incumbent to grant access to their assets below their efficient cost will only encourage excessive entry, and inefficient competition, lower beneficial network effects and production economies

and lead to a waste of resources and lost opportunities and welfare. The purpose of competition law and regulation is to protect living and working conditions of all EU Citizens by protecting competition – not to protect particular competitors (incumbent or a new entrant) that may be relatively higher cost or less popular.

The barriers to entry relevant to total social welfare and regulators are costs that must be incurred by a new entrant that were not incurred by the incumbent. Thus if an incumbent was granted an exclusive subsidy, tax concession and/or a legal privilege or license under a regulation, that is not available to a new entrant, then those exclusive subsidies, taxes and regulations would constitute barriers to entry to new firms relevant to a regulator. A regulator should then be tasked to ensure the incumbent beneficiaries of a subsidy, tax break or regulatory favour do not abuse the market power or privilege this confers on them, but rather delivers on the assumed purpose of the subsidy, tax break or regulatory favour- greater consumer welfare.

Finally it was noted by a judge in one of the first competition law case that the only limits to competition are the property rights of others.³ Misappropriation of property can give rise to two competition problems:

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

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

Question 3 Drivers of Competition

What are the main drivers of competition (i.e., the elements that make a company a successful player) for the provision, distribution or integration of generative AI systems and/or components, including AI models?

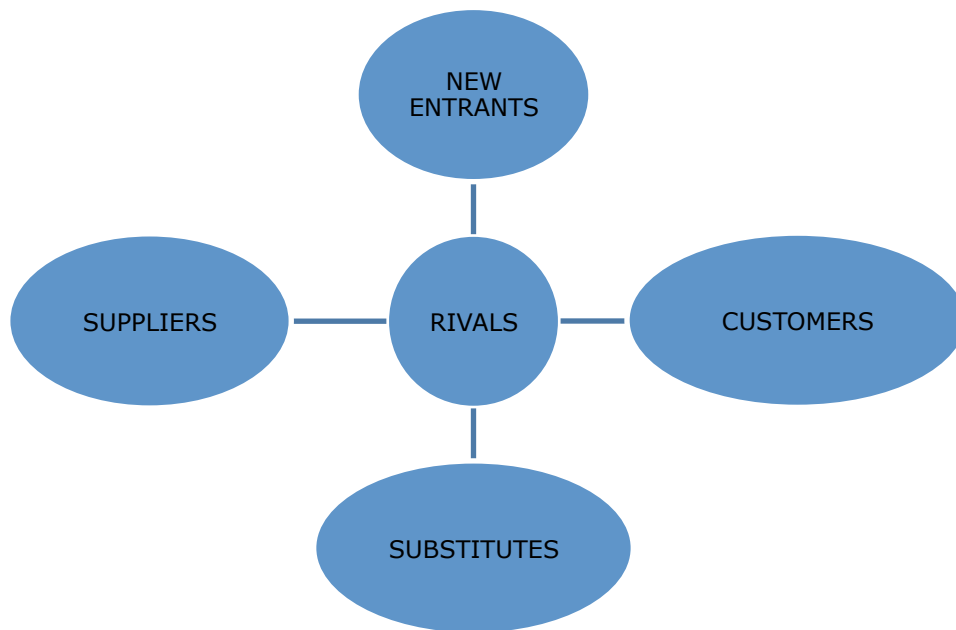
³ Per Lord Halsbury *Mogul Steamship Co Ltd v McGregor, Gow & Co* [1889] LR 23 QBD 598

Once again the lack of market definition haunts this question. The focus of question is on the drivers of competition. Yet it defines these drivers as relating to “the elements that make a company a successful player” - or the characteristics of competitors. The drivers of competition relevant to regulation are not however to be found in an analysis of the characteristics of the competitors in particular successful players. The relevant drivers of competition are instead characteristics of the market – in particular competitive conditions in the market. It is the elements of the market - market competitive conditions - not the elements of a particular company that drives competition. Regulators should thus be concerned with the characteristics of competitive conditions in a market – not the characteristics of individual successful firms.

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

Five competitive conditions or factors drive the state of competition in any market and therefore competition risks. These are listed below, and can be summarised using the diagram below.

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



“In market” rivalry shown in the middle of the diagram is traditionally measured by market shares analysis. But market shares can only be used as a first step for screening if markets may require further assessment. The reason is that one firm may be dominant simply because it is the most efficient⁴, but that firm is nevertheless constrained by the other four competitive conditions identified in the diagram above. It is further well recognized that standard market share measures for assessing competition risks may need to be adapted in two sided or mutli sided markets that are likely to exist in AI market. The two-sided nature of platform activities may, render market shares alone less meaningful as a screen.⁵

The critical competitive condition to focus on in any market is barriers to entry, which may create market power for an incumbent platform. Stigler’s standard definition of a barrier to entry are costs a new entrant has to incur that were not faced by an incumbent is relevant here. The key driver of competition then are the barriers to entry or costs facing new entrants to a market that were not incurred by an incumbent, and therefore blunt competitive conditions or forces. These were discussed in the last section.

Two things appear clear about the drivers of competition with GenAI currently. First GenAI appears likely to create considerable value through out the economic system and considerable improvements in the living and working conditions of European citizens. This high expected value from GenAi is likely to mean all of the GenAI markets are and will be highly competitive for the foreseeable future, as more entry and expansion in the market is supported, has occurred and is occurring rapidly. Second GenAI markets are clearly global, as a simple SNIP in small GenAi market will

⁴ This may be due to economies of scale in production or consumption. These may lead to one firm dominating a market or typically three or four firms if there is product differentiation and market segmentation. There is heterogeneity in the products and services firms may offer, and in consumers demand. To the extent there is a corresponding heterogeneity in consumers demand then there can be “matching” and multiple firms can succeed and match with different consumers.

⁵ Lougher and Kalmanowicz (2016), *supra* note 4, at 97

generate substitution to and from other geographic market on both the demand and supply side. The markets for Data, cloud, talent, FMs and Apps are all clearly global and therefore highly competitive. The important role of global competition highlights the need to ensure competition policy is not used to protect local domestic “champions” or “industry” from foreign competition. These two facts alone (high value and global competition) mean GenAI markets for the foreseeable future are likely to be very competitive. These facts are clouded by the Commission’s focus on input markets, competition issues raised in more mature existing markets and their need for regulation.

To understand the extent of value at stake as a key driver of competition it is critical to first better understand the fundamental source of value at stake in GenAI markets, and not just assume it will be the same as other in “digital markets”. The source, nature and extent of value in GenAI clearly drives the prospect of vigorous competition in GenAI markets for the foreseeable future. In this regard we still have a lot to learn as it is early days. But the best way to analyse GenAI and its economic impact is probably to use that proposed by Agrawal A., Gans J., and Goldfarb A. ⁶ (Agrawal et al) who recast the rise of AI more generally as a drop in the cost of prediction. AI in one sense is just an advance in the statistics of prediction. But AI takes previous statistical methods to a new plane. AI models substantially reduce the costs of predictions. This includes the costs of making predictions at scale, and the cost of error from predictions. When AI is framed as cheap prediction, its extraordinary potential becomes clear. A GenAI system is just an AI system that is able to produce new content, such as texts, images or other media using low cost prediction based on the training of foundation models of large databases of content, such as texts, images or other media. Prediction is at the heart of making decisions under uncertainty. Business and personal lives are riddled with such decisions. Value adding decisions also depend on access to content, such as texts, images or other media. As the training of models using large datasets develops new models and applications for prediction, AI’s and GenAI’s impact will potentially be across an increasingly wider domain (smart phones, transport, health, energy, food production, environmental management etc.).

The impact across all markets appears likely to be threefold

- Allocative efficiency. AI Prediction tools enable resources to be better allocated to their highest value uses. GenAI will enable human talent generally to be focused more on judgement and human creativity in the production and distribution of new content, such as texts, images or other media.
- Productive efficiency. AI Prediction tools increase productivity— inventory management, logistics, operating machines, handling documents,

⁶ Ajay Agrawal, Joshua Gans and Avi Goldfarb, Published in 2018 “Prediction machines: the simple economics of artificial intelligence” by Harvard Business Review Press, ISBN:978-1-633695672

communicating with customers etc. and in the production of produce new content, such as texts, images or other media.

- Innovative Efficiency - Better prediction creates opportunities for new innovations in products, services, production, distribution, business structures and strategies to compete, including in in the production of produce new content, such as texts, images or other media.

The competition to realise these values will be great, and it will occur across all markets. There will be economies of scale and scope in AI (including GenAI) that as they are achieved will release enormous value, and investment over time.

The amount of potential value at stake means that competition is currently intense and has a long way to increase yet. Consumer markets have recently shown rapid growth amongst early adopters, this still leaves considerable scope for more growth, competition and new entrants later.

Finally once one moves away from defining specific GenAI input or functional markets at a high level, and considers geography, it is clear that each of the GenAI markets are global. This means the extent of competition is commensurately global - and therefore highly intense. What is more if one considers time, the extent competition in the market will only increase and competition become more intense over time with new innovations in FM's and in apps and entrants and global population, income and wealth.

Question 4 Competition Issues

Which competition issues will likely emerge for the provision, distribution or integration of generative AI systems and/or components, including AI models? Please indicate to which components they relate.

The six key competition issues likely to emerge in any GenAI market are:

- 1) **Objective.** Need to be clear on the overarching objective discussed earlier
- 2) **Market definition.** It is not possible to assess competition without a clear market definition. Discussed earlier
- 3) **Market Competitive Conditions** or Market Power. Having defined the markets one needs to evaluate the market key competitive conditions and whether there is evidence of any market power – discussed above. Key competitive conditions are
 - a) In market rivalry
 - b) Substitution possibilities for customers, consumer's and/or suppliers
 - c) Barriers to entry
 - d) Counter-veiling Consumer power,
 - e) Counter-veiling Supplier Power.

- 4) **Abuse of market power.** Even if market power is shown to exist, there has to be evidence of behaviours that entail abuse of market power, and not legitimate commercial practise. This includes evidence of
 - a) Unilateral abuse of Market Power, relating to pricing, quantity, or quality
 - b) Co-operative behaviours likely to substantially lessen competition including
 - i) Restraints of Trade
 - ii) Mergers and acquisitions
 - iii) Cartels
- 5) **Harm** It is further important to have both theory and evidence of the nature and extent of harm. To the extent any harm is de minimus regulatory intervention may not be justified
- 6) **Regulatory Failure.** Even though markets may fail, it has to be recognised that regulation may contribute to that failure or make matters worse. Thus the best solution is not to regulate but perhaps reform regulation

I discuss each of these issues briefly further below

1) Objective

The overarching objective of competition law as noted is to promote the welfare of EU people. Generative AI (GenAI) clearly promotes consumer welfare. GenAI promotes

- a. Allocative efficiency - GenAI assists in the allocation of resources to the most valuable uses
- b. Productive efficiency - GenAI enhances productive efficiency, or the production of more goods at lower cost
- c. Innovative efficiency - GenAI enhances the rate and quality of innovation throughout the economy.

The Call does not identify a clear objective, let alone whether and if so prove how GenAI market(s) may be failing to promote consumer welfare. The Call also does not explicitly enable respondents address how regulation has both potentially large costs /risks to consumer welfare (see issue 6 below) which is a key pre-requisite for intervention

2) Market Definition:

As discussed under question1, it is not possible to assess competitive conditions without a clear market definition. This includes markets for “provision, distribution or integration” of GenAI services or products referred to by the Commission in its call - but yet to be defined- plus others. There are clearly a vast array of new and existing markets involving GenAI services and products that will evolve and proliferate over time. Relevant emerging GenAI markets identified in question 1 include

- a. *Markets for Foundation Models (FMs) services*
- b. *Markets for GenAI inputs including*

- Data
 - Cloud services
 - Talent and expertise
- a. *Markets for Downstream services*, such as chat-bots and AI assistants that leverage FMs, where competition occurs at the level of the individual application - which will no doubt proliferate

3) Competitive conditions.

Competition conditions in the above markets are very strong. Market power thus does not exist currently in these markets, as there is

- a. *Strong "in-market" rivalry* and
- b. *Low barriers to entry and expansion* in all markets
- c. *Substitution possibilities for customers, consumer's and suppliers*
- d. *Strong countervailing customer and consumer market power*
- e. *Strong countervailing supplier market power*

Critically there is no theory, nor evidence available, or provided on competition risks due to barriers to entry and expansion. In particular the Commission did not define barriers to entry (BTE) that are relevant to regulation in question 4. Relevant BTE can be defined as costs incurred by a new entrant that are not incurred by an incumbent (Stigler). These BTE do not exist in GenAI markets.

As we have seen "problem" phenomenon or characteristics of digital markets cited by the Commission are not barriers to entry and expansion relevant to regulation, and in any event do not exist at this point and can be dealt with later - including

- i) *"network effects"* - which is just an economy of scale in consumption. These are valuable to consumers. But all firms can benefit from network effects both incumbent and new entrant firms. The more efficient firms will be more effective and competitive and grow most- which is best for consumers
- ii) *"tipping"* - which emerges when it is efficient and good for consumers for one, or a few firms to service the whole market. But the tipping process can be reversed by market processes if an incumbent firm under performs or tries to abuse market power
- iii) *"single homing"* - this is relevant to a multisided-sided platforms business analysis and arrangements used for monetisation. Given low barriers to entry, single homing will only exist and persist if a firm does not abuse market power in any of its markets.

4) Anti Competitive behaviours or Abuse of Market Power

Without market power there can be no anticompetitive behaviour or abuse of power, and there is no evidence of abuse of market power or anti-competitive

behaviours cited by the Commission. The kind of abuse of market power might include

- a) *Unilateral Behaviours*- As noted without BTE there can be no unilateral abuse of market power e.g. on pricing, quantity, or quality - and there is no evidence of it
- b) *Co-operative behaviours* Collaboration is a key requirement for technology innovation. Again, with no BTE there can no explicit or tacit co-operative abuse of market power e.g.
 - i. *Restraints of Trade* - there are efficiency explanations for contracts that may appear to constrain Promisors/Promisee's behaviour
 - ii. *Partnerships* and joint ventures are clearly pro-competitive and fundamentally innovation-enabling
 - iii. *Mergers and acquisitions* - there are efficient explanations in terms of economics of scale and scope, synergies and access to capital markets etc.
 - iv. *Cartels* no evidence of cartels or anti-competitive collusion exists.

5) Harm

The relevant yardstick is harm to EU peoples living and working conditions or welfare caused by anticompetitive behaviours - not harm to competitors. There is no evidence of anti-competitive behaviours causing harm to consumers. Instead there is considerable evidence that evolving GenAI market (s) will involve enormous benefits to consumers

- a. GenAI will enhance allocative efficiency in many markets
- b. GenAI will fundamentally transform productivity - which is lagging in Europe - evidence
- c. GenAI will speed up and enhance innovation - create new consumer products and services and markets and improve existing consumer products and service better products

Premature regulation will inevitably be poorly designed, quickly out of date and hard to change, and only harm consumers. The commission does not provide a theory of harm, or provide any evidence of harm. As noted it does not clearly state or frame its discussion in terms of its overarching objective - namely to promote the welfare of EU Citizens - this leads to a significant risk of regulatory failure.

6) Regulatory Failure

The Commission does not ask explicitly raise a question about the risk and costs of regulatory failure. The Call however risks triggering a very costly and premature regulatory process

- a) The probability is high that the call triggering a regulatory process is premature at this time. The Relevant AI markets are clearly very competitive (see above) and at a very early stage of development.
- b) The Costs of Premature regulation will be enormous. Regulation will foreclose competition and inevitably be poorly designed leading to enormous costs, especially opportunity costs, given the expected benefits of AI in terms of allocative, productive and innovative efficiency that enhances living and working conditions and EU Citizens welfare (see above) This regulatory inquiry will trigger interest group coalition formation, lobbying, and inevitable regulatory capture, regulatory creep and regulatory risk which will in turn distort the market's development, and deter investment and innovation
- c) A "Wait and See" regulatory strategy is required. There is NO evidence of a problem. It is simply too early and highly risky to be commencing an inquiry or regulatory process. Further regulatory inquiry should be postponed till there is sufficient evidence of a problem

More specific concerns under this issue of regulatory costs and risks leading to regulatory failure are that

- The stated Justification for Call provides no evidence of a need for an inquiry into competitive conditions in terms of consumer welfare.
- The stated purpose of the call is to gather information - but it is too early to gather information and the call is not a good vehicle for doing that. It will just create noise and trigger extensive lobbying and lead to "noise" and biased "guesses" and results based on past market and regulatory experience

Question 5 Monetization of AI

How will generative AI systems and/or components, including AI models likely be monetised, and which components will likely capture most of this monetization?

My answer to this question is separated into two parts

First how will generative AI systems and/or components, including AI models likely be monetised? And
Second which components will likely capture most of this monetization?

As noted earlier, in approaching these questions I will focus on products and services being sold in the markets outlined earlier, and not adopt the terms systems or components. Similarly I will drop use of the term monetisation and again focus on product unit quantities (q), prices (p) costs (c) revenues (p*q) and profits (p-c).

How will GenAI products and services be Monetised

To analyse monetisation of a GenAI product or service it is best to separate out consideration of each of the products or services being sold (focal products & services), the quantity of each sold (q), and the price per unit (p) each is sold at in their respective markets. Only then can the likely price per unit (p) and total revenue ($p \cdot q$) – and the “monetisation”, or money earned - from the sale or exchange of a product or service be considered. The likely *unit profit* (value or monetisation captured per unit) can further be estimated using the price per unit (p) less the cost per unit (c), i.e. $p - c$. The likely *total profit* can be estimated by multiplying unit profit by total units sold, or $(p - c) \cdot q$. Rather talk about how goods and services will be monetized, and which will capture most of the monetisation it is better to discuss how they will be priced, and which may capture most of the revenues ($p \cdot q$) or profits $(p - c) \cdot q$.

The separate GenAI markets outlined earlier will determine relevant prices (p) at which GenAI products and services might be priced (or monetised). To analyse competition in these specific markets, and how prices and quantities will be determined (i.e. monetisation) requires so-called partial equilibrium analysis where the factors that might affect equilibrium in “other” markets (other than the market being analysed) are held constant. The specific markets are however all interdependent. Changes in the price (p) or quantity (q) transacted in one market will affect prices and quantities in all other markets. General equilibrium analysis can be used to analyse how competition will lead to a general equilibrium where a set of stable relative prices will be determined across all markets under certain conditions, including the absence of any change in variables affecting demand or supply, and therefore prices and quantities in equilibrium.

When one is analysing competition in a particular market however the firms activities in “related markets” is put to one-side it is not the focus, the analysis proceeds on the assumption used is “ceteris paribus” - or “all else equal” A slight wrinkle partial equilibrium” analysis of competition in a specific market “arises when one has so-called “multisided platforms” that are common, and no doubt already exist and/or are predicted to emerge in GenAI markets. We have already outlined how they should be analysed where they arise.

For multi-sided platforms I would predict that monetisation and value distribution will occur through

- Consumer/User payments and
- Complementary Service/product firm payments

As noted earlier the market prices for platform services in competitive markets on either side can in fact be zero, or even be negative, (where a customer is paid to join a market, or take a service) - and therefore not involve monetisation of the service with that user group – and not be a problem.

Which GenAI products and services likely capture most of this monetization?

Turning to the question who “will likely capture most of this monetization” or who will profit the most from exchanges in Gen AI products and services? My response to this question reformulates it as being about the own-price elasticity of demand for the GenAI inputs outlined earlier of a relevant range. All else being equal, a particular owner of a specific GenAI input’s ability to raise price without hurting their revenues and profits, will depend on the relevant elasticity of demand for the input in response to price changes in the input across the relevant range. The lower the inputs own-price elasticity of demand, or the more inelastic demand for the input is, the greater the value it can capture over the relevant range. If a one percentage point price rise of an input gives rise to a smaller percentage fall in quantity demanded of the input (or ultimately no change in quantity) the owner will be able to capture greater value ($p \cdot q$) by raising price. The higher own-price elasticity of demand, or the more price elastic demand for the input, the less the value it can capture by raising price over any range. The own-price elasticity of demand for an input is high under the following conditions:

- When the price elasticity of demand for the final product being produced is high (scale effect). So when final product demand is elastic, an increase in input market prices will lead to a large change in the quantity of the final product demanded affecting input demand greatly.
- When other inputs or factors of production can be easily substituted for the input (substitution effect).
- When the supply of other factors of production is highly elastic (that is, usage of other factors of production can be increased without substantially increasing their prices) (substitution effect). That is, users can easily replace the input as doing so will only moderately increase other factor prices.
- When the cost of employing the input is a large share of the total costs of production (scale effect)

Question 6 Open-source and Proprietary AI

6. Do open-source generative AI systems and/or components, including AI models compete effectively with proprietary AI generative systems and/or components? Please elaborate on your answer.

It is not clear what the phrase “compete effectively” means in this question. Open source and proprietary systems and components can clearly compete, or be substitutes, but they may also complement each other. Moreover, how “effectively” they compete when they are substitutes needs to be evaluated relative to the essential objective of maximising EU citizens welfare relevant to competition law.

Proprietary AI generative systems and/or components rely on intellectual property rights (IPR) created by intellectual property laws including primarily:

- Patent Law - that give exclusive rights to inventors.
- Copyright Law - that give exclusive rights creators of original expressive works.
- Trade Mark Law - that give exclusive rights to a sign capable of distinguishing the products, goods or services of one enterprise from those of other enterprises and support a brand.

IPR's in general terms define relations between their owners and others with respect to something (an invention, an expression or a sign) by providing the owners of the IPR with exclusive rights to use, receive income and transfer an original invention, expression or sign. They are fundamental rights under The Charter of Fundamental Rights of the European Union. IPR form the bedrock foundation of markets in intangible assets like GenAI, and the incentive to invest in these assets, as they limit scope for free riding and theft, which undermine markets and weaken incentives to invest. Why would someone invest in creating an original invention, expression or brand if it could be just taken from them for free? Why would someone pay a market price to use, receive income or own an IPR if they could simply take it for free? By implication IPR, and the proprietary systems and/or components they protect are very effective in promoting the objective of maximising EU consumer welfare and highly relevant to competition law.

It is up to an inventor, creator or producer whether they claim an IPR to protect their invention, expression or brand. It is voluntary. One does not automatically acquire IPR, and they are not compulsory. Open source GenAI systems and/or components are thus simply products or services that an original inventor, creator, or producer decides not to protect fully using IPR. Open source is thus simply source code that is made freely available for possible modification and redistribution by its creator. The products created include permission to use the source code, design documents, or content of the product. Products such as source code, blueprints, and documentation are freely available to the public. A main principle of open-source software development is peer production.

The open-source model seeks to be a decentralized software development model that encourages open collaboration. This is a more narrow or intermediate objective than maximising EU people's welfare. It is not clear how well they do this, however one presumes open source systems are able to meet the personal objectives of open source product creators or they would stop doing it, and open source would not exist. Open source products however presumably also contribute to consumer welfare if current consumers alive today can acquire access to the products more cheaply than otherwise, as the creators of the code are not seeking payment to allow access. But whether this outcome is actually in the long run benefit of future consumers relative to a world where open source providers were not so common is unclear and an empirical question. As to the extent open source creators do not try to recover their costs of creation and invention, they may not be able to generate as high value, high quality a product as proprietary systems over time. To the extent they are not able to recover their costs of invention and creation this may reduce the average quality of source code in the market over time compared to proprietary systems. The existence of the open source product to the extent it is a substitute may then reduce the market price for all competing proprietary products, and thereby one would predict potentially reduced investment in proprietary products, and the output and quality of proprietary products over time as a result.

In a world where proprietary and open source software are allowed to co-exist they clearly compete and complement each other. To the extent they are substitutes free open source may lead to a low cost low quality corner solution for code. Any offsetting complementarity benefits would then have to be considered. The outcome for EU citizens welfare is an empirical question.

Question 7 The Role of Data

7. What is the role of data and what are its relevant characteristics for the provision of generative AI systems and/or components, including AI models?

Data is used as an input to train AI models. The relevant characteristics of data from the point of view of competition analysis are that it can be obtained in very competitive markets. These competitive markets are established and supported by laws that establish clear property rights in data. For example

- GDPR requires the consent of digital users for use of their personal data, which protects individuals right to privacy, which in turn is transferable by consent, and therefore supports a market.
- Copyright law requires the consent of creators of creative works or content data (News, music, film games etc.) and thereby protects creators' rights to creative content which again is transferable by agreement and therefore supports a market. Content industries like the music industry have developed mature market mechanisms for licensing use of creative content data. In addition there are "de minimus" exceptions to copyright

like fair use that enable use that does not significantly harm the creators' interests.

- Trade mark law require the consent of the trade mark holder, and thereby protect the trade mark holders rights, which again are transferable by agreement and therefore support both a market, and investment in product quality.

There may be areas of intellectual property rights that could be improved, for example in relation to the name, image, voice and likeness of artists. Such improvements would enable the better operation of digital data markets. Competition law interventions however are not required in data markets, which are clearly competitive.

Question 8 The Role of Interoperability

8. What is the role of interoperability in the provision of generative AI systems and/or components, including AI models? Is the lack of interoperability between components a risk to effective competition?

Interoperability as a service

It is important to recognise that interoperability is a characteristic or feature of a product or service. For the purpose of developing an economic analysis of the regulation of interoperability under competition law it is therefore useful to start with a narrow definition of interoperability itself as a service. In the context of information and communication technology (ICT) interoperability is a technical service, which enables the exchange of data between ICT systems. Thus an initial definition of interoperability as a technical service might define it as a service which enables “*the exchange of data between respective information and communication technology (ICT) systems.*”

From an economic point of view demand and value for interoperability is derived from demand for final goods and services that interoperability supports or is embedded in. The final goods and services are transacted in an *output* market - in markets for public services – while interoperability services are transacted in separable *input* or factor markets. In the same way that taxi services are transacted in different markets from the markets for the cars that might be used as taxis, and the petrol that fuels them.

This leads us to the consideration of the competitiveness of the relevant market conditions for the input service. If the market for the relevant services are competitive then the need for law or legal intervention other than general law relied on to define all initial property rights and contracting rules is unclear. Instead all that may be required is for users of inter-operability to better specify the features of the services they are trying to deliver, and then rely on competitive markets to deliver inputs or options best likely to achieve that. In doing this there will be a need to accept the

classic economic constraint of scarcity, and transaction costs, which means trade-offs will be required, and outcomes may seem imperfect. Of critical importance to relaxing scarcity constraints over time however will be the need to create an environment that is favourable to investment in new technology which best meets evolving needs. In order to encourage such investment and innovation, there will be a clear need for Government policy to respect and protect the intellectual property rights of inventors, creators, and investors, while relying on competitive markets to best deliver outcomes.

No doubt there are many non-technical factors that affect the achievement of interoperability– but the definition of interoperability as a service should not be blurred in such a way as to “encompass” these factors. The aim should be to deliver the desired services at least cost through competitive markets. As noted to achieve this one first needs to clearly specify the service to be delivered. This will reduce contracting costs, and expand the role of competitive markets. A clearer focus on the requirements of the services for technical interoperability should then be complemented by a better assessment of the nature of organisational, legal and political inter-operability, and how they affect technical interoperability. In this regard, the competitiveness of the market for technical interoperability is a key issue we shall turn to next. Our conclusion is the transaction costs due to organisational, legal uncertainty and political factors are likely to be the cause of any problems - not the lack of competition.

The Global Competitive Market Context

The market for interoperable services is clearly a global and competitive one. On the demand side there are innumerable consumers, businesses and governments involved in the consumption, or provision of final goods and services that may be facilitated by interoperability. On the supply side there are low barriers to entry to the supply the ICT services required. There is thus nothing really to prevent new innovative entrants offering ICT services with various features and mixes of characteristics including interoperability, so long as intellectual property rights are respected, and legal distortions, barriers to entry and uncertainty are minimised.

Economics suggests that the institution that is best able to govern the provision of private goods services generally is a competitive market. This applies to the provision of interoperability services as much to anything else. In this regard the current market for interoperability services appears to be global, and therefore highly competitive. Focus therefore turns to enhancing and protecting incentives to invest in the dynamic process of innovation required to meet changing demands and technical opportunities over time. The supply of dynamically adaptive interoperable services over time requires investment. The incentive problem then is that without adequate returns to investment in new technology there will be weak incentives to incur the costs and risks of investment. This underlies the need for protecting IPR including patents, and enforcing royalties, and minimising the uncertainty surrounding the limited role of competition law.

The solution of interoperability problems is generally not a technology or competition law problem. It is a contracting problem best solved by competitive markets over time. This highlights a key point – very often people are pointing to the wrong problem,

frustration with technical interoperability, when it is governance or organisational incentives, and legal and political issues that are preventing interoperability.

Question 9 Vertical Integrated Companies

9. Do the vertically integrated companies, which provide several components along the value chain of generative AI systems (including user facing applications and plug-ins), enjoy an advantage compared to other companies? Please elaborate on your answer.

Vertical integration involves benefits (e.g. greater investment in specific assets) and costs (e.g. greater bureaucracy) outlined further below that depend critically on features of economic assets, human beings and their environment. This can vary between industries and firms. In general, in competitive markets however (like GenAI markets) vertical integration will occur for efficiency reasons or when benefits exceed costs. Logically where vertical integration occurs and the merged entity survives profitably as an organisational form in a competitive market, then the arrangement is likely to be advantageous compared to the alternative of separate ownership for all concerned including consumers. As a more efficient organisational arrangement it will be pro competitive in its effect and create more value for European consumers than the alternative.

The relevant comparison for competition law then is between the net benefits of vertical integration versus no integration for competition and for the welfare of EU peoples. It is not relevant to a competition law inquiry to ask whether the integrated company will enjoy benefits or “an advantage compared to other companies” as in question 9, to the extent this question implies a concern with whether competitors will be disadvantaged. As noted earlier the concern for competition law is with competition in the market, not the interests of competitors. The degree to which the vertically integrated company faces competition both from other existing vertically integrated companies, and stand alone companies, and from the threat of entry of such companies is the key consideration for competition law. The extent to which a vertically integrated company appropriates the net benefits of its vertical integration depends on how competitive the market is.

For completeness I outline the relevant drivers of the net benefits of vertical integration below

- Benefits of Vertical Integration

The benefits of vertical integration is that it can reduce transactions costs when there are specific assets, information problems and risk of opportunism. In GenAI it is likely that valuable investments in relationship specific asset will be required. This involves investments in AI systems and models that are tailored to specific customer or users needs. This means there may be competition ex ante

or before the relationship is formed, but ex post parties have sunk investment costs, and may be locked into the relationship. Given inevitable information costs problems will also arise from information asymmetries, where it not possible to easily monitor performance and measure the value created by each side to a market (demand and supply). This will give rise to opportunism or interest seeking with guile as people try to capture value from the relationship that is disproportionate to their contribution and agreed terms, and appropriate the value of the other parties sunk specific investment. Given the costs of enforcing ex ante agreements, the risk of opportunistic behaviour ex post will deter specific investment ex ante. With vertical integration however, the CEO of the merged firm will be able to enforce terms of exchange ex post that support greater value creating specific investments, that enhance the efficiency of the firm and its ability to compete to meet its customers needs. So vertical integration is pro-competitive.

- Costs

Vertical integration by substituting hierarchy for market exchange can also however involve costs including bureaucracy that will need to be weighed in any merger and acquisition decision. Arms-length competitive market relations provide more high-powered incentives that can address principal agent problems better and when there is little or no value from specific investments, few information problems and weak risk of opportunism, there may be offsetting costs and not gain to vertical integration. This however is not a competition law problem.

Question 10 Mergers, Acquisition and Investments

10. What is the rationale of the investments and/or acquisitions of large companies in small providers of generative AI systems and/or components, including AI models? How will they affect competition?

As outlined in the last section mergers and acquisitions creating vertical integration can help encourage large existing technology firms to make large specific investments in a relationship with smaller GenAI firms that facilitate the development of AI products. Given AI is at an early stage of development, yet projected to have wide value adding applications, smaller firms may be better able to access capital from more knowledgeable large technology firms that better understand the opportunities and risks of their business, than in arms length open capital markets. At the same time it is likely that larger technology firms will have complementary assets and knowledge that are synergistic, or can also add value to the activities of the smaller firm.

Weaker forms of co-operation not involving vertical integration and joint ownership of a merged entity are also possible using partnership or joint arrangements through contract. These may involve risk sharing through profit

sharing agreements, without conceding control. The party making the most valuable specific investments will retain control. Profit sharing may then better align incentives of the parties, when the ventures success depends heavily on consummate co-operation. The smaller company retaining control will be important when the smaller firm is likely to be better at managing and controlling the development of specific investments required in GenAI. Partnerships and joint ventures then have the beneficial effects of strong incentives for co-operation with lower risks of costs of joint ownership such as bureaucracy, or other diseconomies of scope.

Question 11 Need to adapt EU Legal Concepts

11. Do you expect the emergence of generative AI systems and/or components, including AI models to trigger the need to adapt EU legal antitrust concepts?

The emergence of Gen AI is not per se likely to trigger or necessitate significant changes to legal concepts associated with competition law. This is not to say that changes to EU legal antitrust concepts are not required for other reasons. There is evidence from recent competition law decisions affecting large technology companies in digital markets for example that there may be significant problems either with fundamental EU legal antitrust concepts, or with the way they are being applied to technology industry. This includes the use, interpretation and application of vague concept like multi-sided markets, network effects, tipping and multi versus single homing. This problem however predates and is not triggered by the emergence of GenAI.

Question 12 Need to adapt EU Antitrust Investigations

12. Do you expect the emergence of generative AI systems to trigger the need to adapt EU antitrust investigation tools and practices?

There may be issues around transparency that will no doubt be address by market arrangements based on strong competition, but Gen AI per se is not likely to trigger or necessitate significant changes to EU antitrust investigation tools and practices. This is not to say that changes to EU antitrust investigation tools and practices are not required for other reasons. As noted there is evidence from recent competition law decisions affecting large technology companies in digital markets that there may be significant problems either with fundamental EU legal antitrust concepts, or with the way they are being applied to technology.

The DG Competition's focus on, and approach to what it calls Digital markets (or ICT markets and firms) certainly seems misplaced and ill conceived. These

markets and firms (other than those that involve state owned enterprises, or that benefit from state aids) simply do not exhibit the characteristics of markets that require antitrust intervention or supervision. Markets that antitrust authorities should be investigating are those characterised by poor performance slow growth, low productivity and low innovation - not ones characterised by very big increases in productivity and innovation like ICT or digital markets. To a significant extent then it seems the Commission is focusing it's anti trust investigative powers on the wrong markets. The focus should be on trying to make poor performing markets perform better by tackling the legal barriers to entry, and inefficient regulation they suffer from.

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