

Orange's response to the European Commission's call for contributions on competition in Generative AI

Abstract

Orange welcomes the Commission's initiative to seek public consultation on the impact of generative artificial intelligence (hereinafter "GenAI") on competition. This includes exploring how competition law can ensure effective competition as companies embrace this new technology. At this early stage of the analysis, Orange would like to offer its perspective on two aspects concerning the challenges presented by the adoption of GenAI by companies and consumers in relation to competition law.

The first aspect concerns the competition challenges related to the provision and operation of GenAI by large digital companies, who have the resources required for buying¹, developing, training, and implementing GenAI services. This concern is widely recognized in both academic literature and the analyses conducted by certain Competition Authorities². The competition issues in the GenAI sector are closely related, if not identical, to those previously identified in the cloud sector and other digital platforms where the "*Winner takes it all*" principle prevails. These issues include ecosystem-based operation, network effects, economy of scale, and more. Ongoing investigations by Competition Authorities, particularly those under the Digital Markets Act (DMA), are expected to shed light on problematic practices and market failures that may arise in the context of GenAI.

From a competition standpoint, AI can have impacts at two levels: as a standalone AI market (primarily in the upstream stage of creating and deploying foundational models), but also as a tool that can leverage other markets through its inclusion in core offerings or services where its value will continue to grow.

In this context, it is worth considering whether the integration of GenAI into the marketing of a product or service should be evaluated as an innovation that simply adds a new functionality to existing offerings, or if it positions them in a separate market compared to the same products or services without AI. Similarly, the integration of a GenAI component at the core of a product or service's functionalities raises the question of whether it should be regarded as constituting a distinct relevant market on its own.

This question is of utmost importance for companies that are progressively integrating GenAI into their product and service marketing strategies. However, it is already relevant in the integration strategies of vertically integrated companies within the AI value chain.

Competition authorities have the option to use tools like the DMA, which applies to specific Core Platform Services (CPS) without requiring an extensive market analysis for all platforms used by end users. If we assume that GenAI services are already covered by the DMA, either as Online Search Engines or Virtual Assistants, it raises the question of integrating competing GenAI services within CPS as well as ensuring the portability of powerful GenAI across different platform services. In light of this, it is worth considering whether the DMA should eventually encompass office suites, which are currently not listed as CPS but can gain significant power when enhanced with GenAI capabilities.

In its Opinion on the cloud sector, the French Competition Authority highlighted that the increasing use of GenAI will drive the growth of demand for cloud services, which are already dominated by certain players

¹ US Federal Trade Commission, Inquiry into Generative AI Investments and Partnerships, <https://www.ftc.gov/news-events/news/press-releases/2024/01/ftc-launches-inquiry-generative-ai-investments-partnerships>.

² UK Competition and Markets Authority, AI Foundation Models: Initial report, 18 September 2023, <https://www.gov.uk/government/publications/ai-foundation-models-initial-report>; and French Competition Authority, Opinion No. 23-A-08 on the competitive functioning of the cloud sector, <https://www.autoritedelaconurrence.fr/en/press-release/cloud-computing-autorite-de-la-concurrence-issues-its-market-study-competition-cloud>.

(particularly hyperscalers) identified for their significant market power under the DMA. However, Orange notes that no cloud services have been included in the initial CPS designation despite the presence of very important companies.

The second dimension pertains to the use of GenAI by companies for their internal needs and to develop new offerings for their customers. The widespread adoption of GenAI across various sectors raises questions that could have implications for companies' internal compliance policies. It may necessitate a broader adaptation of "antitrust concepts" and "antitrust investigation tools and practices."

As outlined in Orange's White Paper "*Visa pour un futur numérique plus interactif*" published in 2023³, GenAI is expected to play a growing role in shaping companies' decision-making processes and fully integrating into their customer relationships. In light of these evolving organizational and commercial strategies, several questions emerge concerning competition law.

³ <https://fr.blog.businessdecision.com/ia-generative-visa-pour-un-futur-numerique-plus-interactif>.

1. 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 emphasized by both the English⁴ and French⁵ competition authorities, it is commonly acknowledged that three key components are essential for the development of a GenAI system: access to substantial amounts of data, access to a skilled workforce in the field, and robust computing capabilities, typically in the form of TPU (Tensor Processing Units) or GPU (Graphics Processing Units) hardware with sufficient computing power.

Orange considers that in addition to the three general components mentioned, there are other resources that are necessary for the development and deployment of a high-performing AI service. Orange provides a list of these elements in Appendix.

Orange recognizes that the use of lawfully acquired diverse and high-quality data is a crucial differentiating factor in the implementation of AI systems. This approach helps mitigate issues such as biases associated with data training and overfitting. By leveraging diverse and high-quality data, companies can enhance the performance and reliability of their AI systems.

It is worth emphasizing that access to high-quality proprietary data will play an increasingly significant role in developing competitive GenAI models. This becomes particularly important as publicly available data is expected to be fully used by various actors in the long run. In the future, there may be a scarcity of fresh data for training GenAI models, making the exploitation of up-to-date and high-quality proprietary data a key driver of differentiation.

2. 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.

The vertical integration of large digital platforms and their ecosystem of services can potentially grant these companies the power to exclude competing foundational models or impede the entry of companies operating downstream in the GenAI value chain.

Large digital platforms often enjoy privileged and, at times, exclusive access to data that is challenging for their competitors to replicate. This grants them a significant competitive advantage, as access to such data is crucial for training and improving AI models. This advantage can create barriers to entry for potential competitors and raises concerns about fair competition and market dynamics.

In the cloud sector for example, hyperscalers are increasingly integrating AI into their services. As highlighted by the French Competition Authority in its aforementioned cloud Opinion, an hyperscaler stated in the investigation that it “*uses artificial intelligence to continuously optimise infrastructure investments and avoid building data centres that are too large for demand*”⁶. More generally, the French Competition Authority emphasized the specific synergies that these players can benefit from in developing their GenAI model: “*hyperscalers benefit from privileged, even exclusive, access to data that is difficult for their competitors to*

⁴ UK Competition and Markets Authority, AI Foundation Models: Initial report, 18 September 2023, <https://www.gov.uk/government/publications/ai-foundation-models-initial-report>.

⁵ French Competition Authority, Public consultation on the generative artificial intelligence sector, opened until Friday, 22 March, Question 1, <https://www.autoritedelaconurrence.fr/en/press-release/generative-artificial-intelligence-autorite-starts-inquiries-ex-officio-and-launches>.

⁶ French Competition Authority, Opinion No. 23-A-08 on competition in the cloud sector, 29 June 2023, https://www.autoritedelaconurrence.fr/sites/default/files/attachements/2023-09/23a08_EN.pdf, §207.

*reproduce and is likely to give them a decisive competitive edge. This privileged access may stem in particular from the fact that many cloud services use artificial intelligence to exploit data and deliver more sophisticated analysis services to their users. Through better sales targeting and a more detailed understanding of customer needs, this analysis can improve existing service functionalities and develop new tools, such as artificial intelligence or machine learning*⁷.

By developing AI tools integrated into enterprise cloud services, hyperscalers have the ability to provide their GenAI services with highly qualified information, that can be used for example for models fine-tuning, about their customers' behaviour, their needs in terms of IT services and data management, often on a global scale for multinational clients. This highly qualified information clearly appears as a difficult-to-replicate differentiating factor, creating over time a significant barrier to entry.

3. 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?

Access to large and also high-quality datasets can indeed provide a significant competitive advantage. It allows companies to train their AI models more effectively, resulting in improved performance and more accurate outcomes. This advantage is particularly relevant for large platform services that operate on a global scale, as they can cater to increasingly internationalized businesses and develop multilingual AI models based on diverse feedback from various geographies and cultures.

4. 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 issues surrounding the provision and operation of GenAI services by large platform companies are significant, especially considering the power imbalance in negotiations between these companies and their counterparts. This power imbalance may further strengthen as the demand for and development of this new technology increase, particularly if it remains predominantly controlled by these actors.

Large digital companies have already developed various skills and technological components that enable them to develop, train, improve, and differentiate their GenAI services from other players. This technological advantage further contributes to their dominant position in the market.

The synergies enjoyed by these actors are indeed amplified through a positive feedback loop throughout the value chain of GenAI. On one hand, they can directly leverage the key infrastructures they mobilize and the vast amount of high-quality data they collect while providing foundational models to build, train, and deploy their GenAI models. On the other hand, they can integrate and optimize their digital services using their own GenAI technology, further strengthening their existing power in different markets. This reinforces their competitive advantage and potentially creates barriers to entry for other players in the GenAI ecosystem.

GenAI heavily relies on a continuous process of training and improving the model, and large digital platforms can fully benefit from the network effects generated through their extensive user base. With access to high-quality data and extensive user feedback, these platforms can ensure the reliability and attractiveness of their GenAI models. The large user base provides valuable insights and enables the platforms to refine and

⁷ French Competition Authority, Opinion No. 23-A-08 on the competitive functioning of the cloud sector, https://www.autoritedelaconurrence.fr/sites/default/files/attachements/2023-09/23a08_EN.pdf, §541.

enhance their models, creating a competitive advantage that can be challenging for other players to replicate.

Orange recognizes the crucial importance of network effects in the development of GenAI models, particularly in terms of reliability and relevance. Human feedback plays a vital role in determining the accuracy and appropriateness of the responses generated by the model.

Another important aspect to consider is the risk of dependence on computing power suppliers, which is a crucial resource for deploying and training AI models, as mentioned in question 1. This could be the case if a dominant operator in this upstream stage of the chain were to exercise abusive, exclusive, or discriminatory control over different buyers.

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

GenAI can be monetised through different manners, for example:

- Trained model, provided under the form of a downloadable model that customers can purchase and deploy on their infrastructure.
- Trained model, provided under the form of an API, which can be integrated into several environments, products, etc.
- Packaged GenAI features that can be integrated into systems like cars, Operating systems, mobile phones, etc.
- License for model fine tuning from a larger generic model.
- Expertise related to model usage, limitation, fine tuning, integration.
- Subscription service, with freemium.
- Advertising on GenAI interfaces, where people will spend a lot of time.
- Advertising mixed in GenAI productions.
- GenAI auditing, evaluation system, de-biasing systems, may be sold by specialised companies.
- Specific rules engines to check the compliance with regulation and company's policies (for example for eventual biases or inappropriate copies of proprietary content) and filter / improve quality of production of GenAI.

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.

In theory, open-source GenAI systems and components can indeed compete in several ways with proprietary GenAI systems and components. Open-source projects can benefit from contributions from a diverse and global community, leading to rapid innovation and improvement. Additionally, open-source models are often free to use, making them more accessible to individuals and organizations with limited budgets. Users can also customize and tailor open-source models to their specific needs, which may not always be possible with proprietary systems. Furthermore, open-source systems offer transparency, allowing users to understand and verify the underlying algorithms and processes. These factors contribute to the potential competitiveness of open-source GenAI systems in the market.

In practice, Orange believes that open-source systems may face challenges in effectively competing with proprietary systems for several reasons:

- **Financing:** Open-source projects would require a sustainable business model to finance the significant investments needed for training models. Without proper funding, it may be difficult to develop and maintain competitive GenAI models.
- **Training data:** Proprietary solutions have already addressed the issue of training data, ensuring they have the necessary copyrights and usage rights. For example, Adobe ensures ownership of the material used to train their solutions. While open-source projects can rely on community contributions to create datasets, it may take longer to gather the required data.
- **Talent competition:** The competition for talent in the field of GenAI has been intense, with the private sector offering attractive proposals to top experts. It may be challenging for the open-source community to compete with these offers, potentially limiting their ability to attract and retain top talent.
- **Full ecosystem management:** GenAI requires a comprehensive understanding of the training, deployment, and usage processes. To create an efficient system, it may be necessary to run models and gather feedback from users. Managing the entire ecosystem is crucial for developing best-in-class systems, and this can be a complex task for the open-source community to handle effectively.

The recent CMA report recognizes that open-source data available on the internet has been instrumental in developing many high-performing AI models, including large language models. However, the report also emphasizes the importance of access to high-quality and diverse data for the development of such models. As the data requirements for training AI models continue to increase, fully leveraging the available open-source data may become more challenging. This highlights the need for ongoing efforts to ensure access to diverse and high-quality data to support the development of high-performing AI models.

The report acknowledges that data from public sources, including web scraping, often form a significant portion of the datasets used for pre-training AI models. However, there are concerns that the quality and diversity of open-source data may not be adequate to support the continuous improvement of AI model performance as they become larger and more complex.

The report raises the possibility that in the future, there may be a need to access proprietary data to further enhance the performance of AI models. This is because there could be a saturation point where the utility of currently available open-source data reaches its limit. As AI model development continues to advance, there may be an increased reliance on proprietary data to maintain competitiveness and drive further improvements.

In summary, the CMA report indicates that open-source data has played a crucial role in the development of AI models. However, it also suggests that there may be limitations to the effectiveness of open-source data in the future. As AI model development progresses, access to high-quality proprietary data could become a significant competitive factor for companies in this field.

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?

The role of data is key for the creation, validation, and improvement of GenAI models, as well as for AI models in general. The data need to possess the following characteristics:

- Sufficient volume, variety, quality, and relevance.
- Correct labelling to ensure accurate training and validation.

- Absence of biases or documented and adapted biases aligned with the objective.
- Appropriate representativity to prevent over-representation of specific characteristics.
- Legal acquisition to ensure compliance with regulations.
- Freshness is also important, depending on the intended usage of the model, to maintain relevance and accuracy.

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?

After the initial generation of GenAI systems, which typically involve vertical integration like ChatGPT, the second generation is expected to focus on integrating GenAI capabilities into various services and platforms. This integration could extend to operating systems, mobile devices, customer care solutions, cars, and more. The goal would be to seamlessly incorporate GenAI functionalities into everyday applications and services, enhancing user experiences and providing more personalized and intelligent interactions across different domains.

In the second generation of GenAI systems, the development of interoperability solutions is crucial. These solutions will enable the creation of an open ecosystem, providing end-users with choices and potentially opening the market to new players. By fostering interoperability, this approach can lead to greater innovation, competition, and diversity in the GenAI market, ultimately benefiting both consumers and industry stakeholders.

Without interoperability, there is a high risk of eviction. However, even with interoperability, the lead taken by GenAI players could make it impossible for new entrants to catch up. On top of the models themselves, much of the success is due to the effectiveness of the implementation of Reinforcement Learning with Human Feedback.

How to ensure the interoperability of the feedback is probably important: it may be compared to the attempt of the DMA to provide better transparency and feedback to the advertiser. The part of the Human Feedback is likely to become even more important soon. For example, the integration of GenAI in operating system, in search engines and in software suites such as Office365 will multiply this human feedback.

The same risks will exist across all domains, such as assisted coding, and the consequences in terms of competition are even more significant because the number of solutions and players is limited.

Interoperability must be ensured at every step of GenAI, from training to inference. To ensure interoperability, it may be necessary to establish standards, guidelines, and frameworks that facilitate the seamless integration and exchange of data and feedback across different AI systems and platforms. This can help foster competition, innovation, and user choice in the GenAI market.

As Orange has highlighted, addressing the issue of interoperability in the context of AI will require a choice regarding the application of existing obligations under the DMA. It seems that adaptations are already necessary to address these aspects fully.

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.

As elaborated above, the vertical integration is a strong competitive advantage for companies, as the user feedback is crucial in the creation of GenAI systems. Moreover, the user feedback provides ideas of

specialization which will help in the creation of new products/services.

The information related to the interaction with GenAI systems (content sent, produced result, actions related to the conversation with the systems, etc.) is also key for efficient system creation.

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?

The rationale behind investments and acquisitions of small providers of generative AI systems and components, including AI models, by large companies can vary. Some potential reasons include:

- **Access to Innovative Technology:** small providers may offer innovative or niche technology that can enhance the larger company's capabilities.
- **Talent Acquisition:** acquisitions can bring in a team of experts who have valuable knowledge and skills in AI.
- **Market Expansion:** by acquiring providers with unique GenAI systems, large companies can expand into new markets or improve their position in existing ones.
- **Competitive Advantage:** owning proprietary AI technology can provide a competitive edge over rivals in the industry.
- **Intellectual Property:** acquisitions can include valuable patents and trade secrets that can be leveraged for future products and services.
- **Diversification:** adding new AI components or models can diversify a company's product offerings.

The impact on competition can depend on the specific circumstances. On one hand, acquisitions can lead to consolidation in the market, potentially reducing the number of independent players. This may raise concerns about reduced competition and potential monopolistic behaviour. On the other hand, acquisitions can also foster innovation and collaboration, as large companies integrate the acquired technology into their existing offerings and drive further advancements in the field.

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?

Orange acknowledges that competition concerns related to the potential for large digital platforms to dominate and capture the growth of the GenAI sector have been widely discussed and identified by both legal doctrine and certain Competition Authorities.

Orange further believes that the use of GenAI by companies has the potential to impact the application of key concepts used in competition law. Specifically, it may affect the assessment of anticompetitive practices within the framework of traditional concepts. This suggests that the unique characteristics and implications of GenAI technology may require an adaptation of existing competition law frameworks to effectively address competition concerns in the GenAI sector.

GenAI is expected to play a significant role in shaping companies' decision-making processes and integrating into their customer relationships. Several use cases have already been identified:

- **Improving customer experience:** GenAI can enhance the quality of chatbots and voice-bots, leading to more fluid and efficient customer interactions. By leveraging customer interaction data, GenAI can assist sales teams in managing customer relationships, ensuring follow-ups, summarizing key points, and providing advice and recommendations.

- **Enhancing help centres and knowledge bases:** GenAI services can be utilized to create better help centres or knowledge bases for employees. For instance, tools like Microsoft 365's Copilot assistant can structure and streamline information exchanges within the company, improving productivity and collaboration.
- **Automating code generation:** GenAI can assist developers by automating code generation, saving significant time and effort. By inputting a problem in natural language, GenAI can produce well-constructed lines of code, offering an interactive and speedy solution. This differs from traditional code generation tools by providing more precise outputs. While it is possible to find tools on the web capable of performing these tasks, the key difference with GenAI is that it can transform "close to what I'm looking for" into "exactly what I want."
- **Transforming creativity methods:** GenAI has the potential to transform creativity methods in various fields, such as marketing and communication. For example, it can generate images to illustrate articles, addressing the need for speed in content creation. Tools like DALL-E, Midjourney, and Stable Diffusion enable the creation of relevant images based on detailed textual descriptions, allowing marketing teams to quickly generate visuals that can be refined later.

One of the primary advantages of GenAI in companies is its ability to save time on low-value tasks. By automating repetitive tasks, GenAI allows teams to allocate their time and resources more efficiently, enabling them to focus on their expertise and core business activities. This increased productivity can lead to improved operational efficiency, faster decision-making, and the ability to allocate resources to more strategic and value-added tasks. By leveraging GenAI to handle low-value tasks, companies can optimize their workflows and enhance overall organizational productivity.

Orange believes that the adoption of GenAI in companies is already transforming the way we work. This evolution will involve the advancement of existing uses and the creation of new uses with enhanced performance.

As a result, the level of GenAI adoption and the strategic choices made by companies will play a crucial role in determining their competitiveness in the market. This will directly impact competitive analysis of market functioning, interactions between companies, and market power analysis.

Likewise, consumers will increasingly use GenAI, as they already have access to freely available tools like ChatGPT. They will rely on this technology to make informed decisions regarding their consumption choices.

In general, while the responsibility for the adoption of GenAI within an organization rests with the company, it can be argued that the diffusion of GenAI within organizations will blur the distinction between "autonomous" human decision-making and decisions influenced or determined by artificial intelligence.

Given this context, there are several questions that arise, and the answers to these questions will help determine whether and how the substantive rules of competition law should evolve:

- How can the collusive risks introduced by the cross-use of GenAI by companies in the same market, particularly in terms of transparency and exchange of sensitive information, be evaluated? How can the associated chain of responsibility be defined in matters of collusion once human no longer intervene?
- Can certain uses of GenAI by a dominant company, which has significant influence over the data related to its market or sector, potentially create new standards of abuse when the company seeks to influence or distort the available sector-related information to its advantage or to the detriment of its competitors, upon which competitors or clients rely?
- Can it be considered that a decision made by a dominant company based on GenAI, without the ability for the company to determine the biased or erroneous nature of the information produced by it, could limit the qualification of an abuse of dominant position if this decision had an anticompetitive effect on the market? In other words, how does the responsibility of a dominant

company engaging in automatically made decisions by GenAI systems come into play when the company can provide evidence that it was unable to detect the anticompetitive biases taken by the GenAI system?

- In terms of analysing relevant markets, should the integration of GenAI into the commercialization of a product or service be evaluated as an innovation that simply adds a new functionality to existing offerings, or does it position them in a separate market compared to the same products or services without GenAI? Similarly, should a GenAI component (in the downstream stage of the GenAI chain) at the core of the functionalities of a company's product or service be considered as an additional component belonging to a distinct market from the market of the product and service?

Orange observes that previous work on the application of Article 101 in recent months, including the updating of vertical and horizontal block exemption regulations, has not taken into account this dimension. The same applies to the update of the Commission's communication on relevant markets. Similarly, none of these considerations appear to be addressed at this stage in the project to adopt guidelines on the application of Article 102 to abusive exclusionary practices. Orange believes that it would be beneficial for the Commission to enrich its ongoing work with an approach that specifically addresses the risk associated with the use of GenAI by a dominant company.

Additionally, as mentioned in the abstract, the application of traditional competition rules will depend on the challenging task of defining relevant markets in the context of AI.

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

Orange believes that GenAI tools will contribute to structuring, tracking, and streamlining of information exchanges within the company. However, it is important to note that this dimension has implications for compliance with competition rules. The automation and increased use of GenAI tools, especially those integrated into the company's collaboration solutions, will lead to the automation and multiplication of traceability of oral exchanges within the company at a very early stage, even before any decision or legal analysis (such as automatic meeting minutes, delivery of transcripts or suggestions, and so on).

Compliance with competition law necessitates that companies assess the legality of their business policies before making decisions. Companies continuously ensure that their exchanges leading to decision remain controlled to avoid any risk of unfounded self-incrimination or extrapolation of exchanges. The introduction of GenAI tools will generate more written content that may vary in reliability and could potentially relay inappropriate spontaneous comments and could suggest that isolated thoughts at an early stage may reflect the behaviour of the company.

In the internal operational exchanges of companies, the fact that questions are raised, or perspectives are considered does not necessarily mean that they are actually implemented. Therefore, it can be considered that GenAI tools used by the company to support or complement internal discussions may confuse the questions raised by some employees and the solutions adopted by the company. Employees may individually raise questions with anticompetitive implications, even though the company has compliance measures in place to prevent such decision-making. The number of informal exchanges that the AI captures will not in such case reflect the reality of the company's compliance with competition rules.

In other words, a GenAI used by the company may be fed with reflections that are potentially non-compliant with competition law, even though the solution ultimately adopted by the company is perfectly lawful. The perception of the AI tool can be distorted in this sense that it will absorb both sources of information without necessarily distinguishing between reflections that have been discarded and not implemented in practice

because of their non-compliant nature and actual decision that would be compliant.

Thus, a mix of free, isolated, and sometimes excessive reflections, along with decisions that have a real impact on the market, could artificially raise suspicion levels for competition authorities in their investigations.

Indeed, the bias that already exists in the practice of keyword analysis in competition investigations is likely to be amplified with the outputs of GenAI, as a single incriminating email in an investigation is rarely balanced by an exonerating email.

In this regard, Orange questions how competition authorities will be able to reconcile the consideration of information produced by GenAI in their investigations, given the inherent risks associated with this production. Orange believes that investigation practices by authorities should be clarified considering the possibilities offered by the introduction of GenAI systems within organizations.

Appendix to question 1 presenting a list of components necessary to train, deploy and distribute generative AI systems

Components needed to train:

- **Data:** a large and diverse dataset to learn from.
- **Model Architecture:** a suitable generative model architecture such as a Generative Adversarial Network (GAN), Variational Autoencoder (VAE), or autoregressive model like PixelRNN.
- **Computational Resources:** hardware with sufficient computational power, usually GPUs or TPUs.
- **Optimization Algorithm:** an algorithm like stochastic gradient descent (SGD) and its variants to optimize the model's parameters.
- **Loss Function:** a function that measures how well the model is performing, to guide the optimization.
- **Regularization Techniques:** methods to prevent overfitting, such as dropout or weight decay.
- **Evaluation Metrics:** metrics to assess the quality and diversity of the generated samples, such as Inception Score (IS) or Fréchet Inception Distance (FID).
- **Software Framework:** a deep learning framework like TensorFlow, PyTorch, or JAX.
- **Hyperparameters:** settings for the learning rate, batch size, number of epochs, etc., which need to be tuned for optimal performance.
- **Validation Set:** a separate dataset to validate the model during training and avoid overfitting.
- **Expertise:** knowledge in machine learning, deep learning, and domain-specific knowledge depending on the application.

Components needed to deploy:

- **Trained Model:** a fully trained generative model ready for inference.
- **Inference Engine:** software that can run the model and generate outputs, often part of a deep learning framework.
- **Deployment Platform:** a platform to host the model, which could be on-premises servers, cloud services, or edge devices.
- **APIs:** Application Programming Interfaces to allow users or other applications to interact with the model.
- **Scaling Mechanism:** infrastructure to scale the service up or down based on demand, such as Kubernetes or serverless computing services.
- **Monitoring Tools:** tools to monitor the system's performance and health in real-time.
- **Security Measures:** security protocols to protect the model and data, including authentication and encryption.
- **Data Storage:** systems to store any input data or generated outputs, if necessary.
- **User Interface:** a front-end interface for users to interact with the model, if applicable.
- **Documentation:** clear documentation for users and developers on how to use the API or interface.
- **Compliance:** adherence to relevant legal and ethical standards, especially if the model generates data that could have privacy implications.

- **Maintenance Plan:** a plan for updating the model, patching software, and managing potential issues.

Components needed to distribute:

- **Distribution Channels:** platforms through which the model can be accessed, such as API marketplaces, cloud-based services, or software packages.
- **Licensing:** appropriate licensing agreements that define how third parties can use the model.
- **Documentation:** comprehensive documentation that explains how to integrate and use the model, including any technical requirements and limitations.
- **Integration Tools:** SDKs (Software Development Kits), libraries, or plugins that facilitate the integration of the generative model into different development environments.
- **Version Control:** a system to manage different versions of the model and update users with the latest improvements or fixes.
- **Support Infrastructure:** a support system for users, which could include help desks, forums, or customer service.
- **Security Protocols:** measures to ensure the secure distribution of the model, preventing unauthorized access or tampering.
- **Compliance and Ethics Guidelines:** clear guidelines to ensure users comply with legal and ethical standards when using the model.
- **Performance Monitoring:** tools to track the usage and performance of the model across different distribution channels.
- **Feedback Mechanisms:** ways for users to report issues or provide feedback on the model's performance, which can inform future updates.
- **Scalability Solutions:** infrastructure that supports scaling the distribution as demand increases, such as cloud services or content delivery networks (CDNs).
- **Marketing and Outreach:** strategies to promote the model and reach potential users, including advertising, partnerships, or participation in industry events.