新経済連盟
Japan Association of New Economy

Competition in Generative AI Calls for contributions

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Japan Association of New Economy (JANE)

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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	The main components and the reasons for them are described below. · Data quality and quantity. [Reason] ➢ It affects the accuracy and versatility of the generated AI system, and ensuring high-quality, diverse, and large amounts of data is critical to the success or failure of an AI development project. ➢ Using high-quality, diverse datasets can reduce bias and distortion in the data, thereby reducing the likelihood that AI models will produce unfair or discriminatory results. ➢ There is also a need for LLMs to learn not only the general knowledge of the LLMs themselves, but also the domain knowledge of each industry and the tacit knowledge within the organization. Without this, the output will be too generic to differentiate from other companies and improve the accuracy of the output. · High-spec computing resources. [Reason] ➢ The deep learning models used in generative AI have many parameters and are extremely complex, so computational resources that can process large amounts of data and perform many calculations simultaneously during training are essential. ➢ Training generative AI takes time, but this time can be reduced by using highly specialized computing resources. ➢ The training data used to build a generative AI system needs to be stored and structured in a cloud

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	environment, but high-spec computing resources are also essential for this data processing. · Staff with AI skills. [Reason] ➢ Generative AI can also produce results that are harmful to society, depending on how it is used. Therefore, personnel who understand guidelines and regulations on the ethical use of AI must be engaged in the system design. ➢ Building a generative AI system requires a large amount of data to be trained, but the quality of the output of generative AI also depends on the quality of the training data. Therefore, people are needed who can review the training data and determine the necessary pre-processing.
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.	Barriers to developing/adapting a generative AI system for the enterprise by processing good quality and large amounts of data are the skills and knowledge of the people who will make it happen. Once the skills and knowledge issues are resolved, we believe that access to high specification computing resources and measures against hallucination will become new barriers. OpenAI expanded its generative AI business without relying on major platforms in the past, but since its partnership with Microsoft, it seems to be focusing on integrating AI services with digital services that are already widely available in the market. A similar trend can be seen in the generative AI services offered by other major digital platforms. In terms of access to good and large amounts of data, the integration of AI and existing digital services is important, but there are only a limited number of digital platforms that can reach a broad and wide range of users on a global scale, and the intentions of these platforms are highly influential in the integration of AI systems.
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?	We believe that the driving force of competitiveness will be initiatives that can consider/promote the introduction of cross-departmental AI systems and components under the decree of top management. In addition, since AI is an uncharted field, we believe that it is necessary to raise awareness of the need to use AI from the bottom up in the field, and to work on it

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	voluntarily with awareness of the issues and motivation.
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 following issues are expected. · Enclosure of data used for AI training. ➢ Internationally competitive generative AI systems and data are provided by some large operators that have become digital platforms offering a variety of online services in addition to generative AI. ➢ Since digital platforms can increase their market competitiveness by connecting several different user segments to conduct transactions, there is an incentive to combine data generated by other digital services with generative AI systems to increase market competitiveness. ➢ In light of this, there are likely to be anticompetitive practices such as 1) operators with a dominant position in search engines establishing a dominant position in AI through concentrated data input and further strengthening their market dominance 2) large operators imposing unreasonable barriers to third-party access to the learning data they hold. · Uneven distribution of high-specification computational processing resources. ➢ Computational resources capable of processing large amounts of data used for training of generative AI and executing a large number of calculations simultaneously are highly dependent on a few operators. These operators can control their supply to ensure international competitiveness, which may hinder the international competitiveness of certain jurisdictions in the field of AI. · Uneven distribution of personnel skilled in AI literacy. ➢ The uneven distribution of large amounts of data and high-specification computational processing resources will cause personnel skilled in AI literacy to seek out opportunities where they can apply their skills, concentrating on specific regions and companies that have access to these resources. This may lead to international fragmentation.

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	➢ The bias of human resources toward the needs and values of specific regions and organizations also undermines the diversity of services that is the source of innovation. ➢ The polarization of certain values can also have a negative impact on the fight against misinformation and disinformation, which, together with the risk of competition policy issues, can lead to other problems.
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?	In terms of generative AI systems, the majority of revenue will come from services developed for their own business, using APIs for generative AI models developed by major companies such as GAFAM. In hardware, NVIDIA will dominate the Cuda ecosystem for the time being, but in the medium term, better AI hardware and ecosystems will emerge and take center stage.
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.	The open-source generative AI system is 1) inexpensive to use depending on the environment, 2) freely expressive, and 3) can be executed completely locally, which makes it possible to differentiate between proprietary AI generative system under some limited circumstances. However, the open-source model is also an area in which companies in authoritarian countries that do not have access to western generative AI systems are investing intensively, and it is questionable whether a fair competitive environment can be ensured among open-source models.
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 in this field is to control the direction of output in fine tuning and, in the case of LLM, to extend knowledge that is missing from the model.
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?	With AI models, interoperability is key to developing powerful and effective solutions. For example, if an AI developer is developing a generative AI model focused on a niche market, it is important to optimize the AI model by combining proprietary components while leveraging APIs of generative AI models developed by major vendors. However, if interoperability of data generated by existing digital services is not ensured, developers will be forced to choose a generative AI service that can ensure the necessary data distribution, and it may be excluded as an option even if a better performing AI model emerges in areas other than data access. An example of the competitive disruption

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	caused by the lock-in of data generated by digital services is the mobile ecosystem, where Google and Apple control nearly 100% of the market share, and the high cost of switching between operating systems in this market has essentially led to single homing. If AI services are tied to the ecosystem originating from mobile operating systems, there is a risk of a similar effect of hindering competition in AI services.
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.	If we assume that vertically integrated companies refer to hyper-scalers like Microsoft and Google, they have an advantage as scale and as a digital platform. Although hyper-scalers have an advantage over other companies, there is still room for new business opportunities to emerge.
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?	We believe that investments/acquisitions by large companies in small providers, not limited to generative AI, are made to address for deficiencies in their own businesses or to create synergies with existing businesses. If the investment/acquisition is appropriate, it will give the company an edge over the competition. Currently, there is an overwhelming shortage of human resources in the AI industry, and if human resources are locked up by large companies, fair competition may be hindered.
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?	Large digital platforms are combining generated AI services with their own cloud services and existing digital services and incorporating them as one of the components of their digital platform services. EU competition law should be amended to address this, considering the anti-competitive effects of the digital platform ecosystem, rather than AI systems alone.
12) Do you expect the emergence of generative AI systems to trigger the need to adapt EU antitrust investigation tools and practices?	Although the primary regulatory approach to generative AI incorporated in digital platform services, should be ex-post regulation through competition law, competition law enforcement against large digital platforms is costly in terms of time and money. In light of this, the Digital Markets Act (DMA), which imposes ex ante regulation on some large digital platforms, was enacted as a tool to complement EU competition law, but cloud services are not currently included among the "core platform services" subject to regulation under the DMA. Given the importance of cloud services in the AI business and the impact of AI on

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	existing digital services, ex ante regulation of large digital platforms should consider the impact of the combination of multiple core platform services, including cloud services, to carefully determine the effect of competition restrictions. While we do not deny that ex ante regulation may be an option to solve the problem in areas where there are significant restrictions of competition by gatekeepers, a comprehensive approach to ex ante regulation by the DMA also carries the risk of becoming a double-edged sword that stifles innovation in related areas. When considering a comprehensive ex ante regulatory approach such as the DMA for situations where generative AI and gatekeeper platform services are interconnected or linked, the approach should be limited to cases and targets considered truly necessary based on market conditions and other factors in specific areas, and should not expand the scope beyond what is necessary.

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