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

- massive human-produced information & content, but also synthetic, and derivatives
- nomenclature (as in semantic web / knowledge graph), link between information
- algorithms, librairies (PyTorch/Scikit-learn), drivers (eg. CUDA)
- hardware (CPU, TPU, GPU, LPU...) and often forgotten, high-speed networking within clusters
- energy, lots of it for training, uninterrupted, some for inference
- possibly different kind of hardware for the inference, depending on use case: near edge, far edge, private cloud, hyperscaler

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.

- monopolies at the HW level: NVidia with its bundling of GPUs & Cuda (AMD as credible challenger which we must support for now, and help an EU challenger emerge ASAP)
- duopolies at the library level, even if open source (PyTorch & Tensorflow, both massively funded and driven by Meta & Google)
- oligopolies for the end-user experience, reaching 5 billion people daily (majority of the world population): Microsoft (from massive hardware ownership in their data centers, to Azure IaaS+PaaS, to Office+Teams+CoPilot+OpenAI SaaS), Google (from massive hardware ownership in their data centers, to GCP IaaS+PaaS, to Workspace & Search & YouTube SaaS), Apple (full end-to-end consumer experience, delivering AI models on its own devices and with enough funding to do everything the others are doing), AWS cloud leader in IaaS+PaaS but with no SaaS, still massively dominating.

Distribution to end users is the single most difficult thing to crack in GenAI.
B2B regional/niche markets are still open, but much smaller and in fragmented markets...

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?

Specialized/niche/vertical B2B use cases. Unfair distribution advantage in any field. AI in itself is not a product, it enhances an existing product. Fully "sovereign" local players stand a chance to grab some local marketshare, but not beyond.

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.

AI is not the issue. AI is just software. The market is deadlocked by the usual suspects and converges with Cloud stacks at Hyperscale level, in particular given their purchasing power ability (i.e. they are on top of the food chain when it comes to a constrained supply chain)

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?

SaaS subscription, with prices leveling down and margins plummeting. Currently, nobody is making money from this.

B2B model finetuning, zero scale, mostly "consulting level fees"
Nobody will make money from deployment except for dominant players who will reinforce their position and overall margin.
Only hope: sell tools, shovels.

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.

Yes, but in a distributed way while being slightly less competitive at any given time (but catchup eventually). Nobody in the "open-source gen AI space" wins. Everybody gets a piece. Puts pressure on price. Nobody makes money, except the usual suspects at the full stack/bundled level. Some B2B players benefit and create small to mid-size businesses.

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?

A lot of the data is available but not organize to defend its ownership rights and the community or authors behind it. THis is changing. GenAI will have to steal/scrape and hide behind fake "open-source" label (so called "open-source models" are not open-source, they are open-weights as they do not disclose the source nor the parameters to generate the weights). The law must hold them accountable to pay/reward/disclose the sources.

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?

ABSOLUTELY. The law should enforce interoperability or multi-sourcing at the small to big buyer level to prevent a massive lock-in or winner takes all.

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.

ABSOLUTELY. Most importantly, these stacks/vertically integrated companies (as detailed above) have one asset that most analysis miss: a platform that drives the most sticky component, the developer community. In the stack, one must pay attention to the PaaS component: the biggest competitive advantage comes from the depth and breadth of this community following, especially with Microsoft Azure, Google Cloud, and Amazon AWS.

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?

Risk management, buying an option to the future, but in most cases, it's a safe bet and sustains the consolidation of power at the bottom of the stack: Microsoft funds OpenAI that rents GPUs sitting idle with Azure (pay once, get the money back and a piece of the future). Same for Google (Anthropic). Same for NVidia (Mistral). Same for KyutAI/Scaleway at a much smaller scale.

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?

Yes. Although traditional approaches have failed and will fail. My recommendation: multi-sourcing with a dual best+regional requirement.

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

Yes. We need the most specialized experts with full-stack expertise to participate. US companies are playing the EU playground better than we are. We also need to involve DG Trade regarding pricing & bundling, and think about similarities with the cloud issue (cloud credits, egress fees, etc.)