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Europe's Pitch Book: How digital technology strengthens Europe

The debate about Europe s technology position tends to focus on what it lacks: hyperscalers, tech giants and venture capital. But the relevant questions are how much Europe stands to gain from AI adoption, and whether it can secure sufficient sovereignty. Viewed through those lenses, Europe s position looks considerably stronger



A quick recap of Europe's Pitch Book so far. I began by looking at Europe from an economic perspective, focusing on demographics, productivity and investment. But to me, these economic issues are not Europe's core challenges. The real issues are related to security and dependency. So the key question is what strengths Europe can rely on in a world that is no longer defined by open markets, where power politics sets the direction more than economic rationality.

I see five fields where Europe faces a mix of economic and geopolitical challenges. I have already covered defence and energy. Technology is the focus of this post and in the coming weeks, I will be covering trade and the financial system.

Across all five topics, I see a muddy blend of economic and political considerations in the debate. I will try to explicitly separate the two angles. For technology, the question is whether Europe can benefit from progress in an economic sense but also whether it can achieve sufficient sovereignty. I will first look at the strengths and opportunities for Europe from an economic angle and then consider the geopolitical dimension.

AI is just what Europe needs, when it needs it

Europeans are global leaders in AI adoption. And that's great news as AI can help mitigate three obstacles to growth that Europe currently faces: labour scarcity, its large share of SMEs and its fragmented market.

First, labour scarcity. AI offers three important advantages here:

- It can increase labour productivity, limiting the need for additional workers.
- It can help to compensate for skills shortages amongst workers, making it easier for companies to adapt as the economy changes.
- And it can also act as a matchmaker in the labour market by reducing information gaps between employers and jobseekers. AI can make the needs of employers more transparent and can also help to make potential candidates easier to find. Belgium and Finland have AI-assisted matching systems.

Second, Europe is a continent of small and medium-sized enterprises (SMEs). New (digital) technologies have often posed a challenge for these businesses, as they require high upfront costs**.** But AI is different. Adopting this technology does not require large upfront investments. It can also help SMEs scale up without having to establish traditional support functions, such as HR departments, that might slow the transition from a business with fewer than 20 employees to a larger organisation. While the initial uptake of AI is lower amongst SMEs, data shows that moderate and significant use of AI does not differ much between smaller and larger firms.

Third, AI can help to reduce the frictions created by Europe's borders in two ways: by reducing language barriers and by making it easier to navigate foreign regulations and administration. AI is making translation much easier, while also helping firms understand and comply with regulatory requirements in other markets.

These may all be benefits, but the fear is that Europe will have to pay a high price to use AI models. However, open weight models are seriously challenging the pricing power of large language models. In addition, network effects and vendor lock-in appear relatively limited, while the quality of these models often closely tracks those of LLMs. For many European users, these models will be more than sufficient, not least because user uptake tends to be slower than technological progress in this field. As a result, the overall cost of AI for a continent of users may well turn out to be more manageable than many fear.

So, as a user of digital technology, the AI revolution is exactly what Europe needs, at the moment it most needs it. And Europeans are keen to pick it up. Let's see whether Europe has any strengths on the supply side of digital technology.

Strengths on the supply side

People across Europe's technology space agree: there's no lack of talent here. Many European countries have strong outcomes on PISA scores for maths and science, with countries like the UK, Switzerland, Poland, Estonia and Finland performing similarly or better than the US in maths and science. Many of the brains behind OpenAI are Polish, Google Deepmind and Hugging Face are rooted in the UK and France, respectively. Europe hosts world-class AI research hubs. Zurich hosts Google's largest engineering centre outside the United States and has also attracted research centres from Microsoft, Meta, NVIDIA and OpenAI. London remains Europe's leading AI hub by startup activity and funding, but Paris, Berlin, Amsterdam and Stockholm also have significant activities. Warsaw hosts a large engineering hub for Google.

Europe has a strong position in smaller, efficient, often open-weight AI models that can be adapted to specific use cases, and run on far less computing power. France's Mistral AI is the flagship example, Poland's Bielik is one of the leading sovereign European language models, and Germany's Aleph Alpha specialises in public sector applications. Europe is relatively strong in AI for manufacturing. The European strategy emphasises openness, multilingualism, data sovereignty, and energy-efficiency over the scale pursued by US and Chinese labs.

These smaller models also reduce the need for more data centres. Europe lags far behind the US here, although it is somewhat closer to China. While the build-out is progressing slower than elsewhere, it is still expanding rapidly. Europe is currently projected to almost triple data centre capacity by 2035. The EU is currently tendering seven AI giga factories – specialised data centres for AI training and inference. From an economic perspective, the build-out may be sufficient: compute can also be imported.

Significant additions are expected in existing hubs like Frankfurt, London and Amsterdam, but European markets that lead in renewable energy production, such as the Nordics and the Iberian Peninsula, are seeing an increasing share of investment coming their way. Data centres are expected to account for around 3% of EU electricity demand by 2030. The EU is seeking to ensure that data centres are both energy-efficient and climate-neutral by that date. The good news is that the European Commission sees this target as broadly attainable, though not guaranteed for every facility.

The AI supply chain starts with rare earths and ends with AI model builders. In many of these fields, Europe plays only a limited role, but it does have a meaningful presence in hardware manufacturing. Players like ASML, NXP, Infineon, STMicroelectronics and TSMC Dresden are active in this space. The growth of ASML's ecosystem, in particular, has benefited a wide range of companies and has even been strong enough to positively impact Dutch GDP numbers.

Europe clearly stands to benefit economically from digital technologies. It will do so particularly as a user but also as a producer. Its supply side may be slower than elsewhere, but nevertheless, it will still capture many of the gains. But economics is only part of the story. The other question is digital sovereignty.

Europe's political cards

I believe Europe holds some interesting cards when it comes to digital sovereignty, and notice that Europe is working on strengthening them.

The strongest card that Europe holds in the AI race is ASML. Its machines are used by all large chip manufacturers. It is a global monopoly in advanced EUV technology. The AI value chain relies on it. TSMC could not produce the advanced Nvidia chips without it. The US is very well aware of its complete dependence on that technology. For the US, ASML's technology is crucial. It represents one of the most important technological choke points available to the US and its allies in limiting China's access to leading-edge semiconductors.

In dual use technologies, Europe also has globally competitive positions in niche areas, including optics (Zeiss), industrial and semiconductor lasers (Trumpf), radar and sensing systems (Thales, HENSOLDT) and satellite earth observation (Copernicus, Airbus) and increasingly in autonomous drones (Helsing).

Looking ahead, Europe also has an opportunity to build on its strong position in photonic integrated circuits, a technology that could play an increasingly important role in next-generation AI hardware. From a sovereignty perspective, it matters that this technology is both faster and much more energy efficient.

Europeans are very wary of relying on US cloud providers, AI models, software companies like Microsoft, and social media platforms. But these companies need Europe, too. For Apple, IBM, Microsoft, Meta and Alphabet, between a quarter and a third of their turnover comes from Europe. The concern is that the US government could force many of these players to 'turn off' their services to Europe. While this is a theoretical risk, it's important to realise just how dependent many of these players are on Europe. Their businesses often rely on low marginal costs, so losing access to a market of 500 million people would hurt their revenues and their shares – which are largely owned by Americans. The fact that the EU is a large buyer of US digital services creates a mutual dependency.

European policymakers are developing policies, including an open source strategy, aimed at bringing a sufficient amount of digital infrastructure, models and innovation under European control. US-based hyperscalers are obliged to develop infrastructure in Europe to keep data and models in the EU. These policies specifically aim to limit the strategic dependencies on non-EU providers.

Europe may not hold all the strongest cards, but they do create mutual dependencies. And Europe is working on strengthening them. Whether they prove sufficient will depend on how well Europe plays them.

Conclusion

From an economic perspective, Europe's priority should be to adopt and apply AI, and it's already doing so. AI can help ease labour shortages, is useful for the large base of small and medium-sized companies and has the potential to reduce language and administrative barriers across Europe's fragmented market. On the supply side, Europe does not need to dominate to still benefit from growth in these sectors.

The same principle applies to digital sovereignty. Europe does not need to match the US or China in every aspect of digital technology. It simply needs to have enough capabilities of its own. In the end, sovereignty is less about self-sufficiency and more about creating sufficient mutual dependencies, which is an achievable goal for Europe.

As the Dutch footballer Johan Cruyff might have put it: Europe does not need to win the technology race; it merely has to avoid losing it. That may be easier than many think.

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