



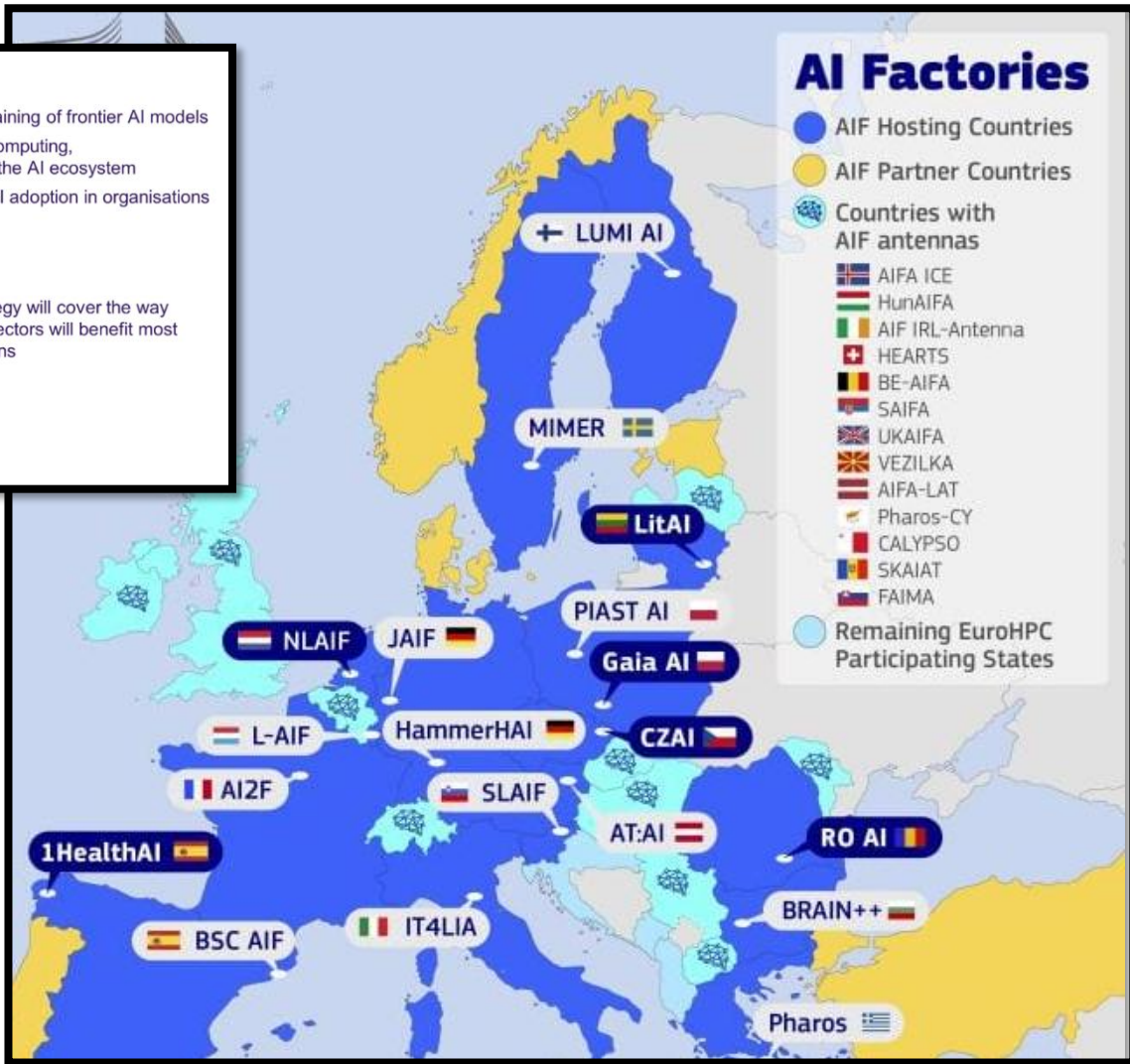
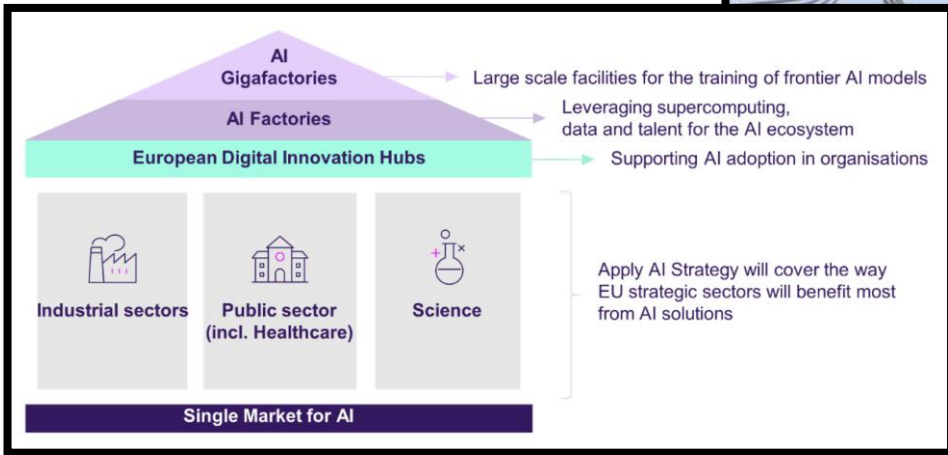
Sanctuaries of innovation or cathedrals in the desert?

Trade-offs in Europe's AI infrastructure strategy
and the search for a distinct approach to AI

Nicoleta Kyosovska

Research assistant, Centre for European Policy Studies (CEPS)

19 March 2026



The talk structure

Part 1: The AI ecosystem and energy needs

We investigate to what extent the locations of the AI factories align with:

- the AI ecosystem
- existing AI infrastructure
- energy conditions



EU PLANS FOR AI (GIGA) FACTORIES: SANCTUARIES OF INNOVATION, OR CATHEDRALS IN THE DESERT?

Nicoleta Kyosovska and Andrea Renda

[Link to commentary](#)



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Part 2: From the hardware to the applications

We turn to the future of the AI *giga*factories and probe into:

- the hardware and software orchestration layers
- the kind of AI models that will be developed



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Part 3: So what?

Shaping the EU approach to AI



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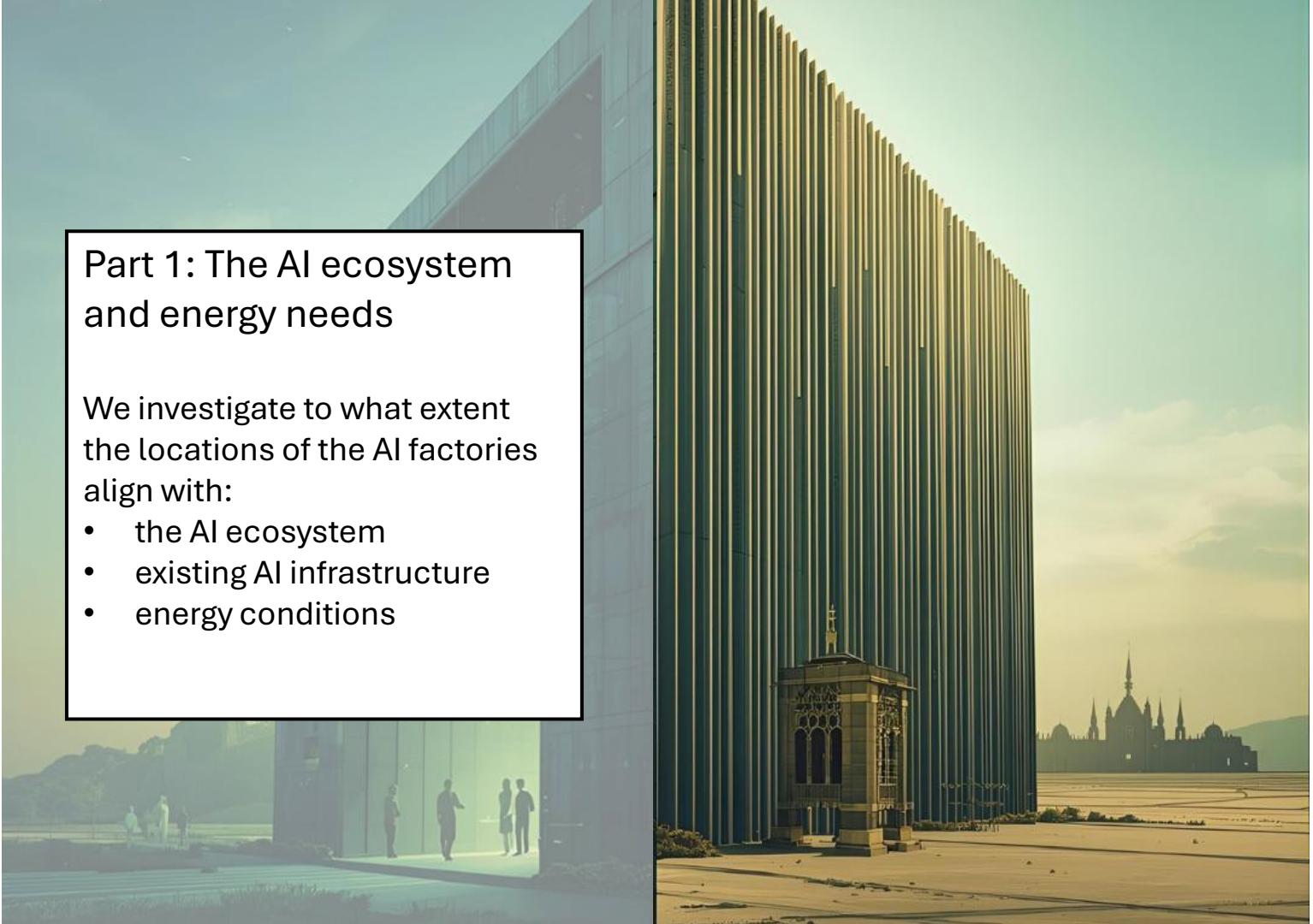
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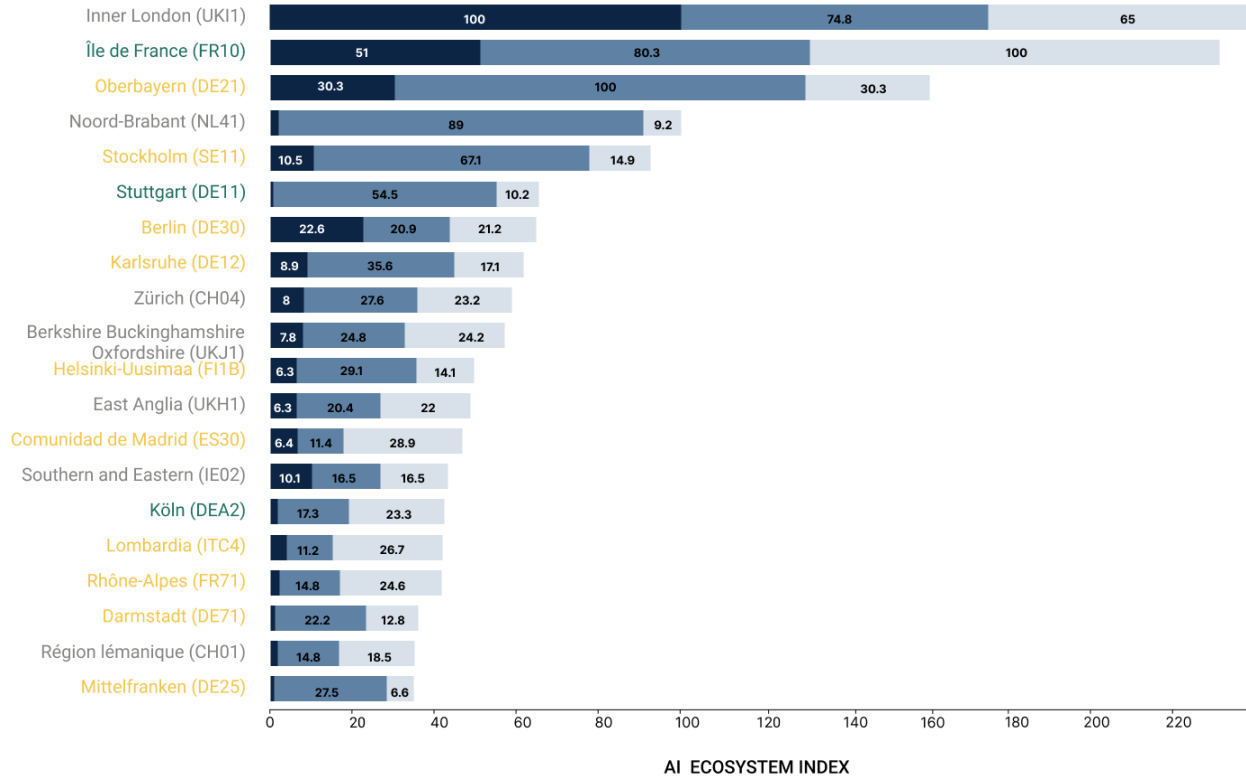
Where factories are located ≠ leading AI hubs

LINK TO AI FACTORY

● Country match
 ● NUTS-2 match
 ● No match

METRIC

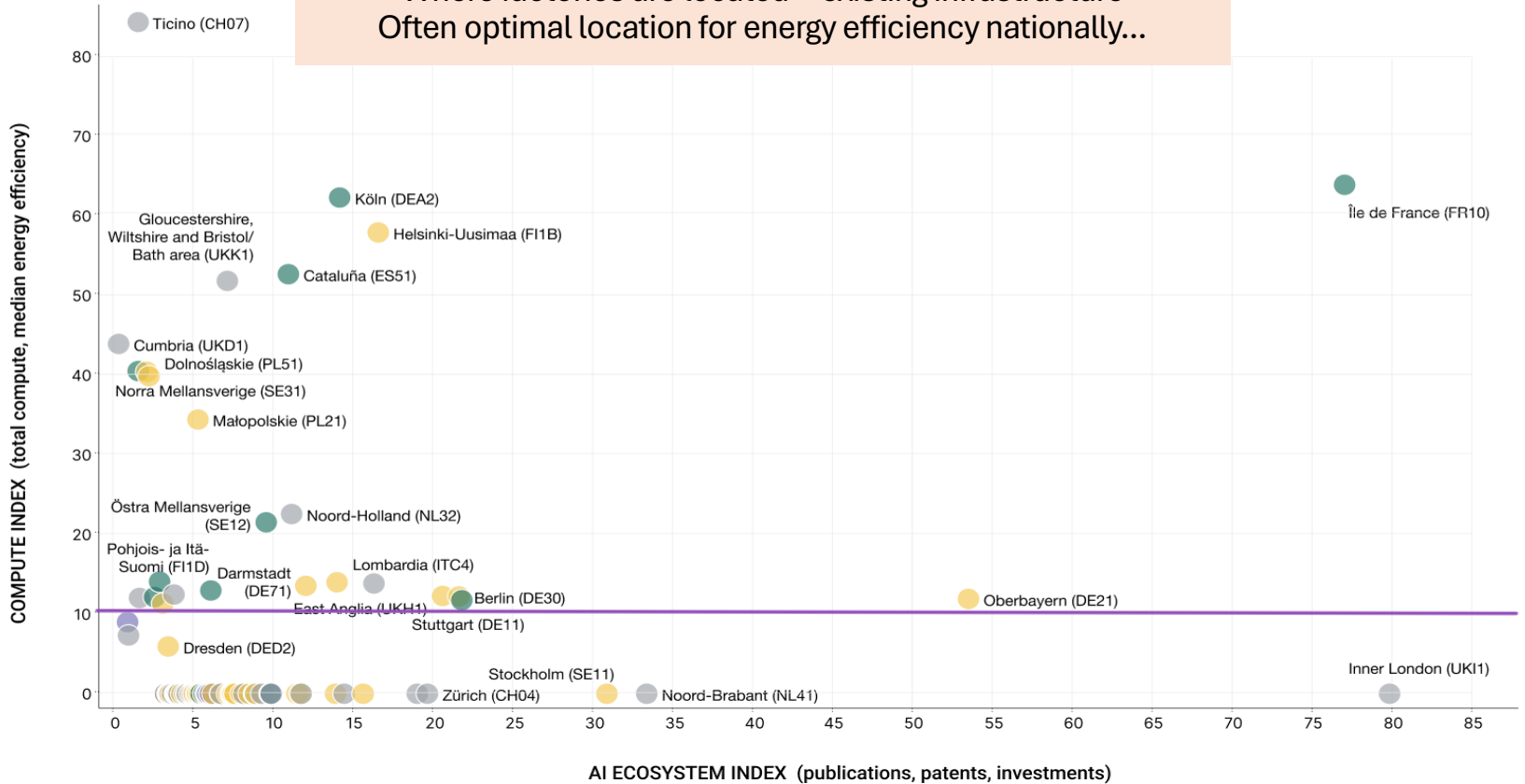
■ Investments
 ■ Patents
 ■ Publications



LINK TO AI FACTORY

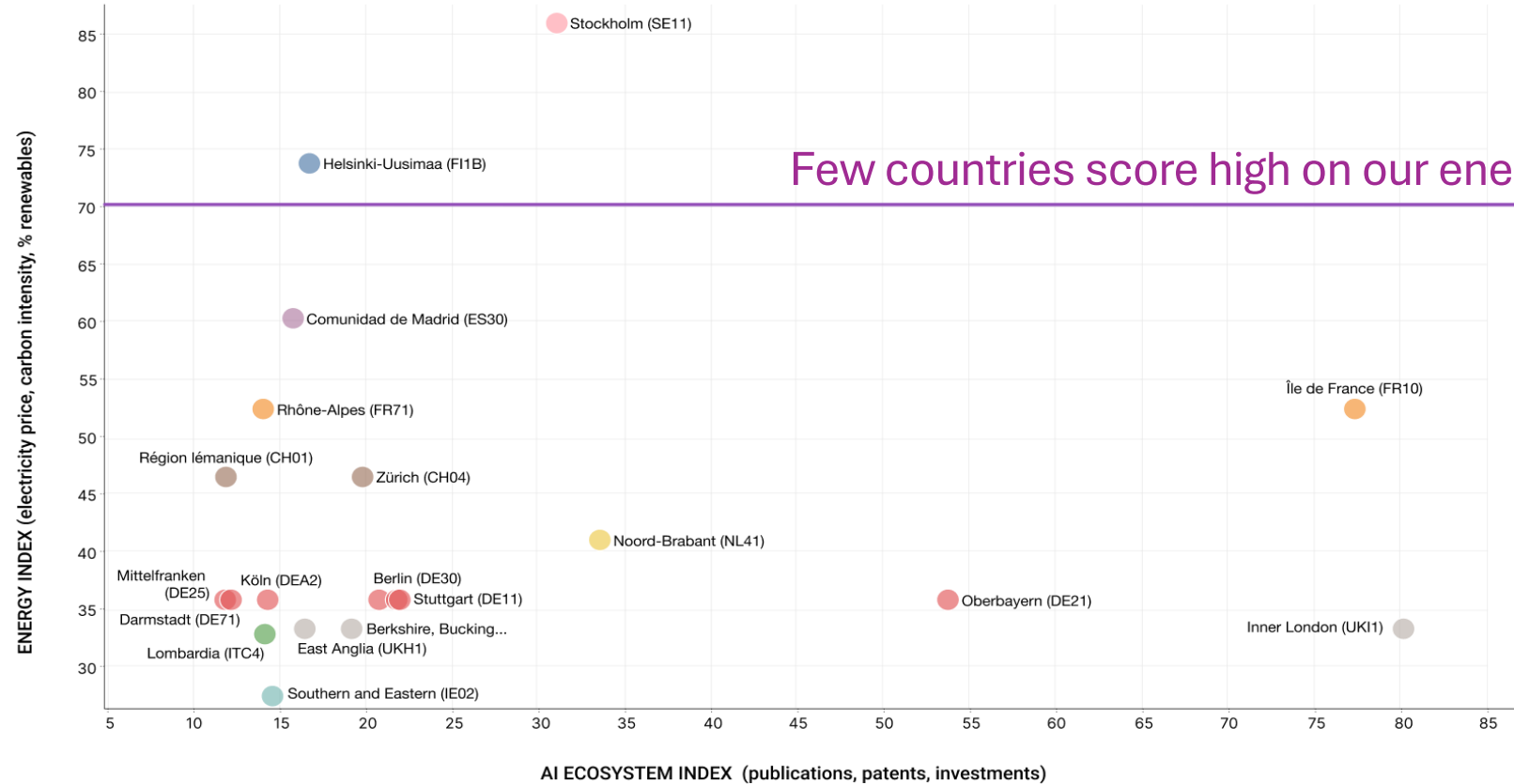
Country match NUTS-2 match Partner country No match

Where factories are located = existing infrastructure
Often optimal location for energy efficiency nationally...

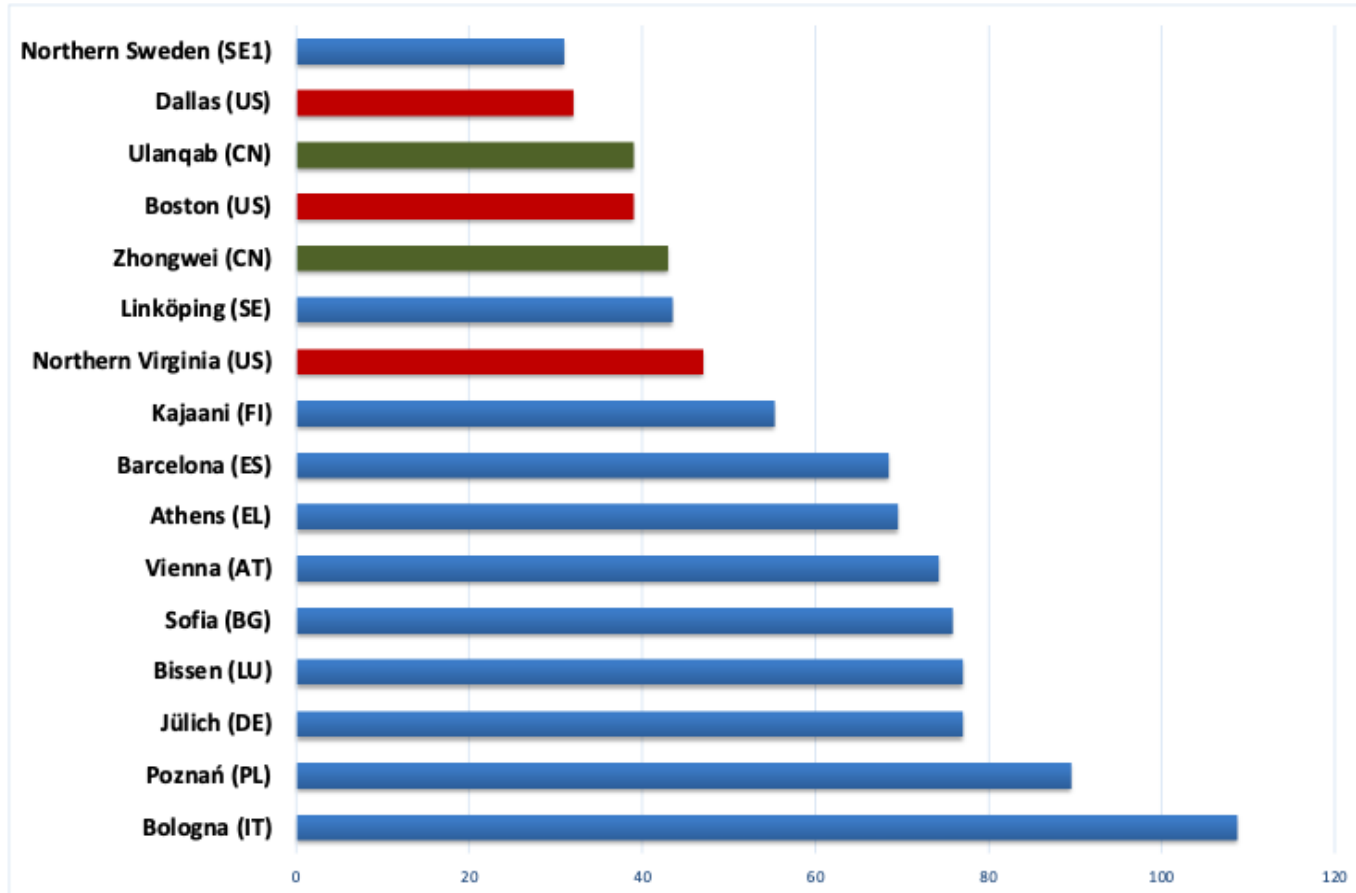


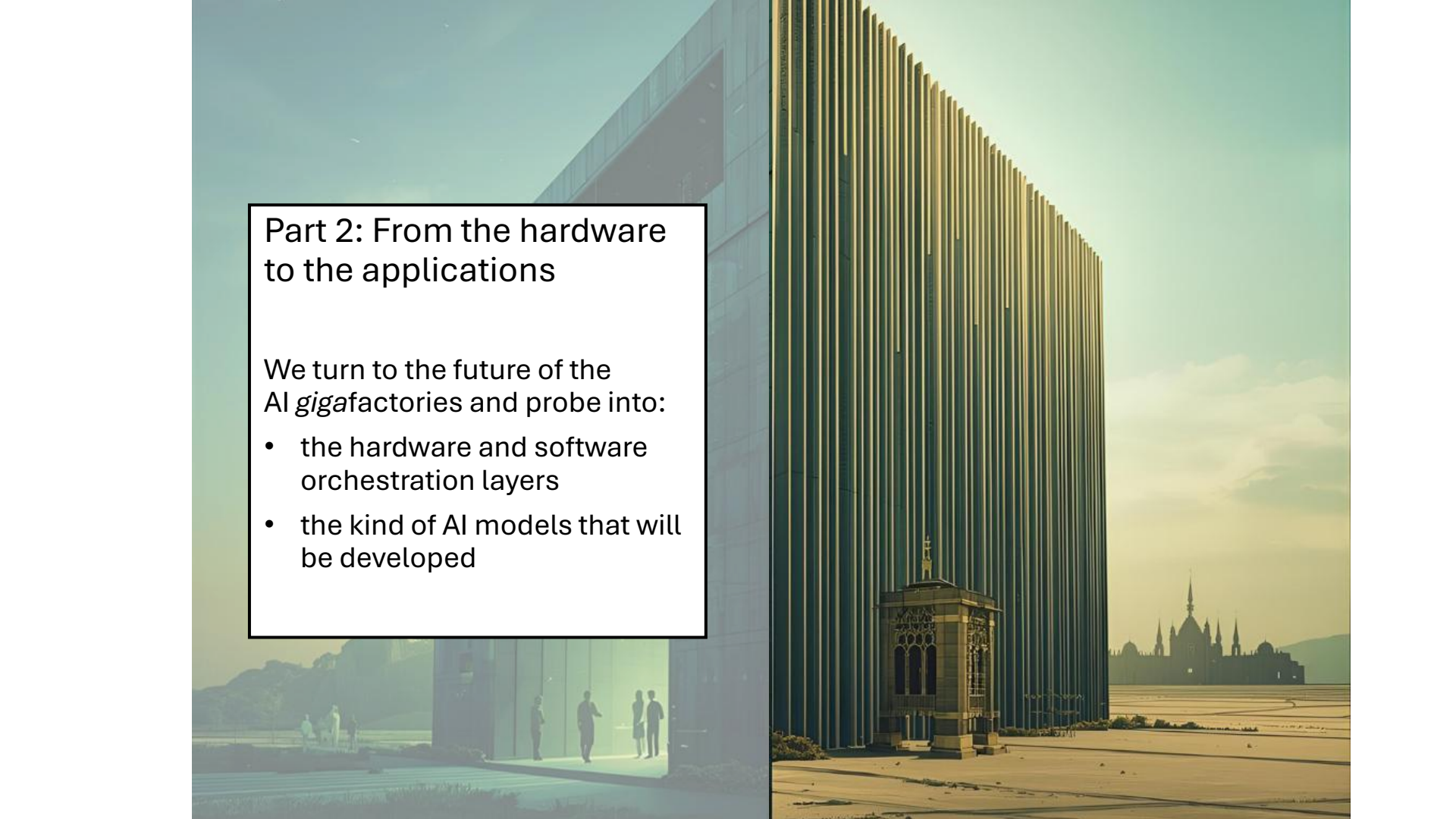
Often optimal location for energy efficiency nationally... but not across Europe

Finland France Germany Ireland Italy Netherlands Spain Sweden Switzerland United Kingdom



Where factories are located \neq competitive energy costs



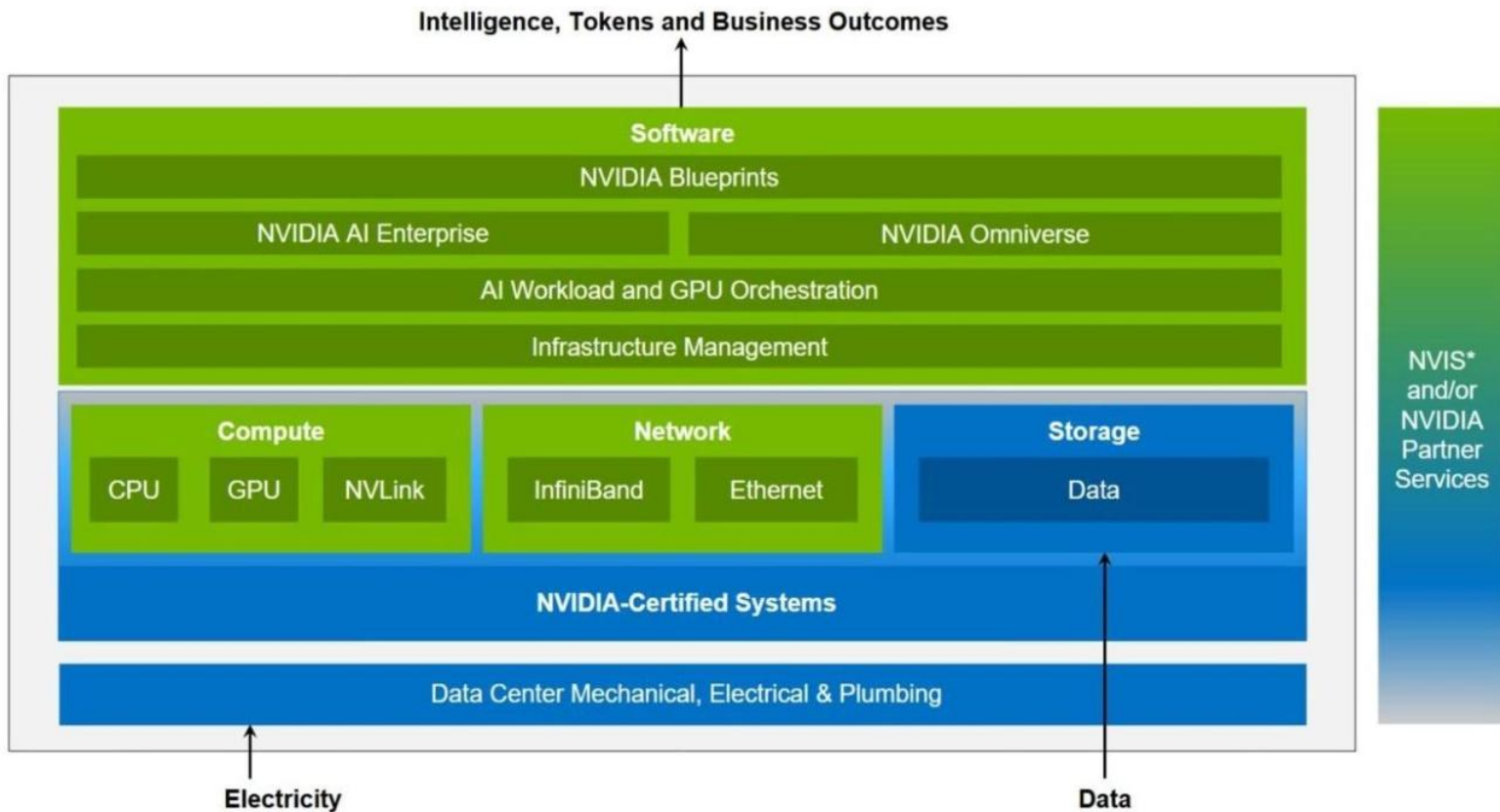


Part 2: From the hardware to the applications

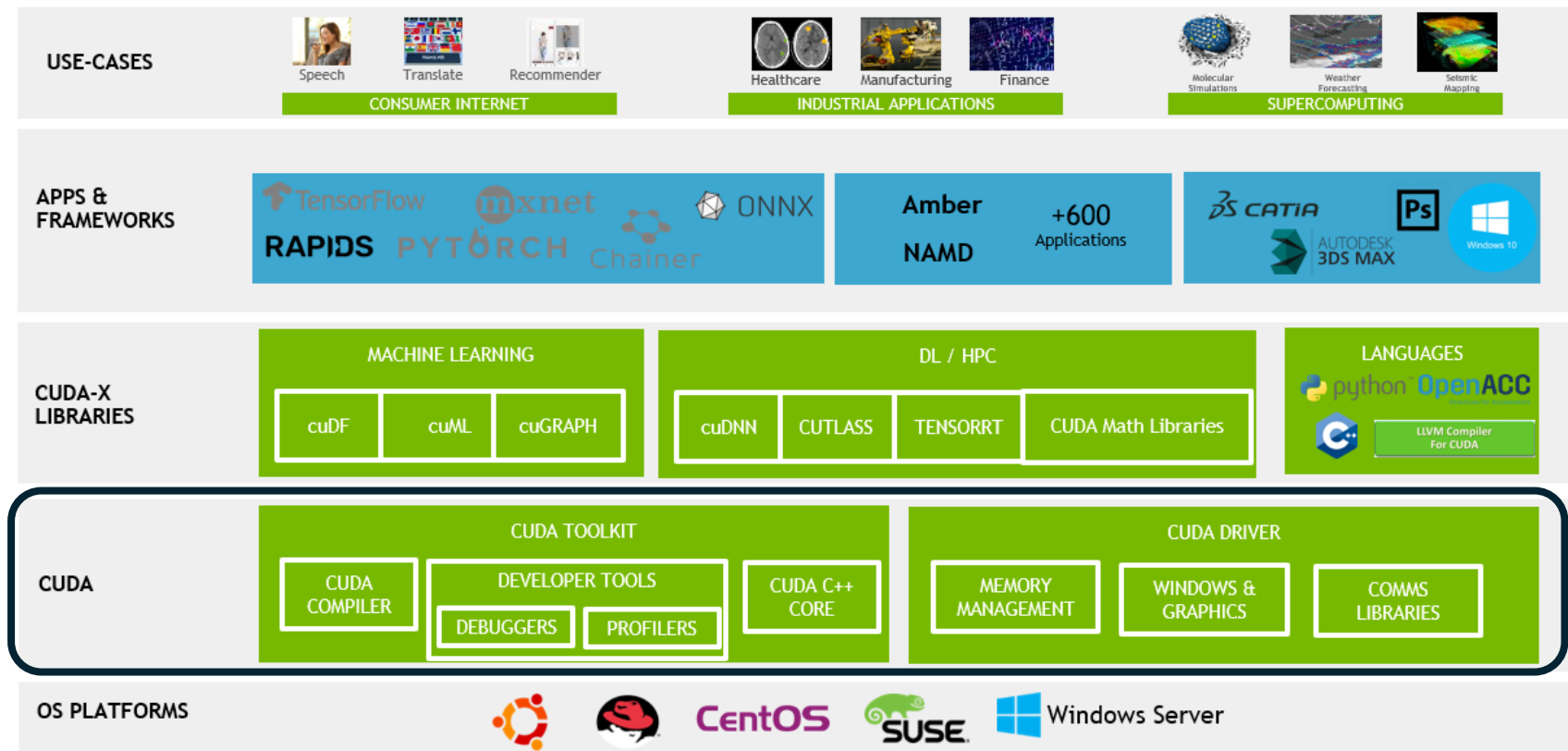
We turn to the future of the AI *gigafactories* and probe into:

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- the kind of AI models that will be developed

Building a new dependency? (1)



Building a new dependency? (2)



Building a new dependency?

(3)



What if Nvidia is outcompeted?

AMD has a more open architecture (ROCm)

Chinese GPUs closing the gap?



What if GPUs are outcompeted?

RISC-V (international standard)

TPUs



What if GenAI is outcompeted?

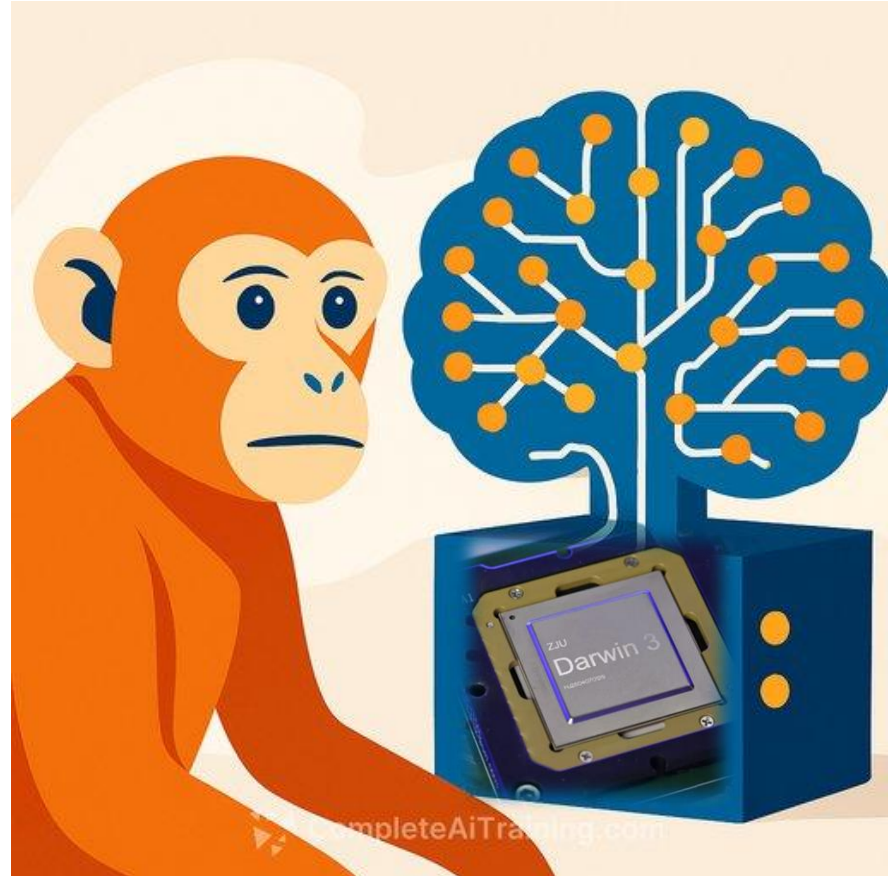
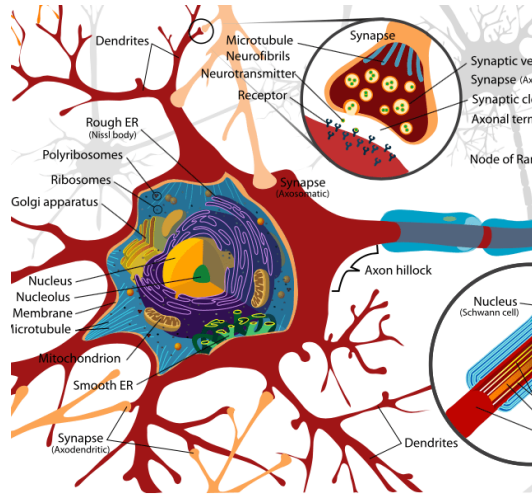
Europe used to lead on neuromorphic and neuro-symbolic approaches, is it still the case?



What if memory chips become essential?

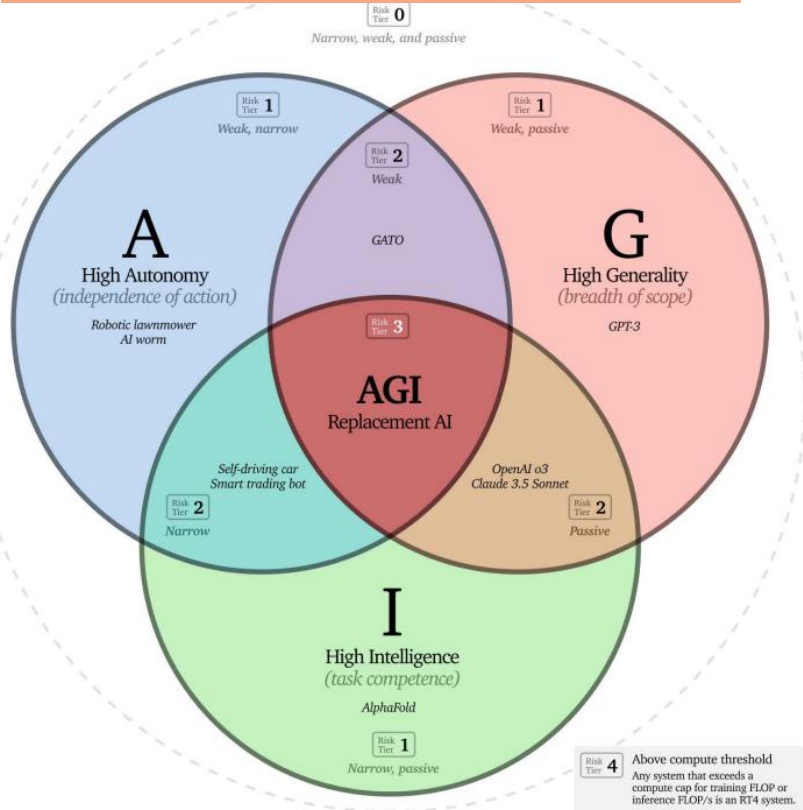
Japan and South Korea dominate the memory chip market

Losing ground on alternative AI approaches?

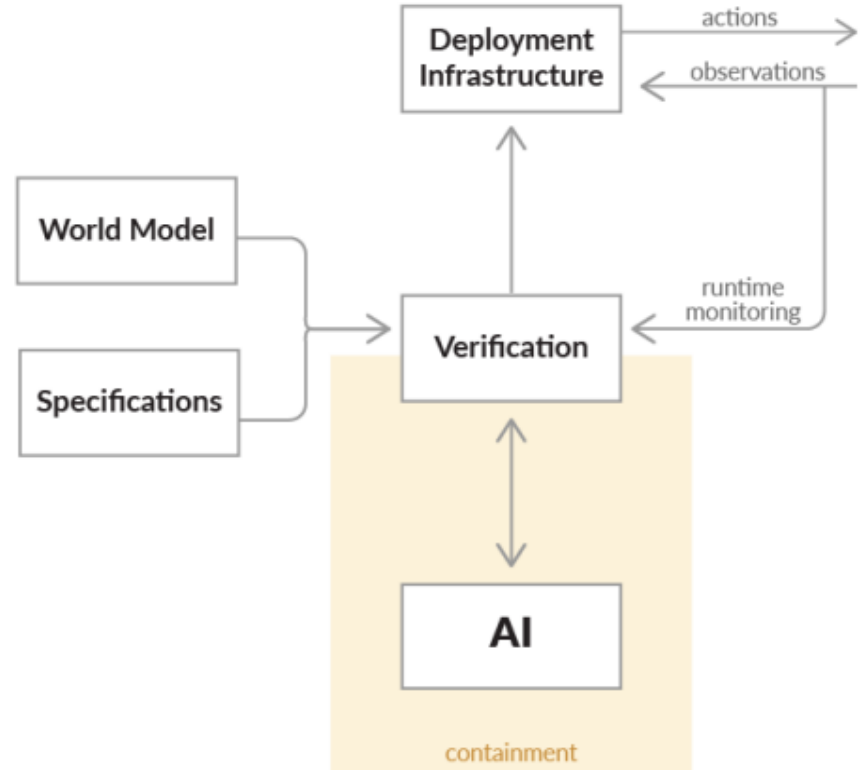


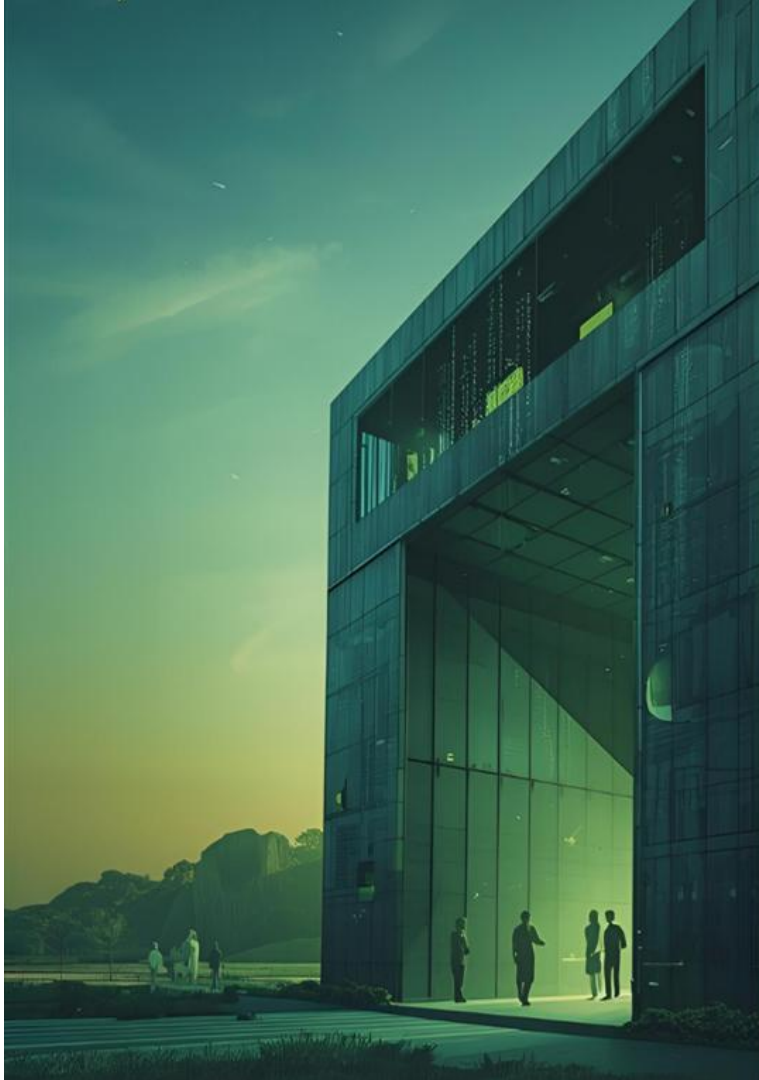
Towards developing trustworthy and reliable systems

Avoiding hazardous capabilities



Guaranteed safety by design





Part 3: So what?

Our recommendations

- Concentrate the gigafactories in the regions with the most optimal energy conditions
- Diversify chip suppliers, invest in strategic partnerships and ensure technical interoperability
- Pair the gigafactories with research agendas on energy-efficient, trustworthy and reliable AI

AI architecture choices shape the entire EU approach to AI.

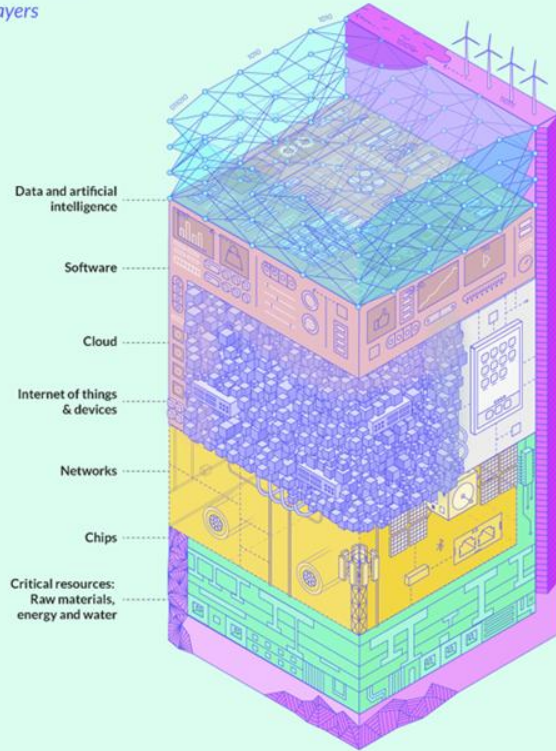


Extra slides

The sovereignty imperative

The current digital stack

The layers



KEY COUNTRIES

Data and Artificial Intelligence



US



China

Software



US



China



Germany

Cloud



US



China

Internet of Things & Devices



US



China



Korea



Germany

Networks



US



China



Europe



Japan

Chips



Taiwan



Korea



US



Netherlands

Raw Materials, Energy and Water



US



China



Russia

Foreign dependency of EU (indicative)

Up to 95%

50% - 70%

> 85%

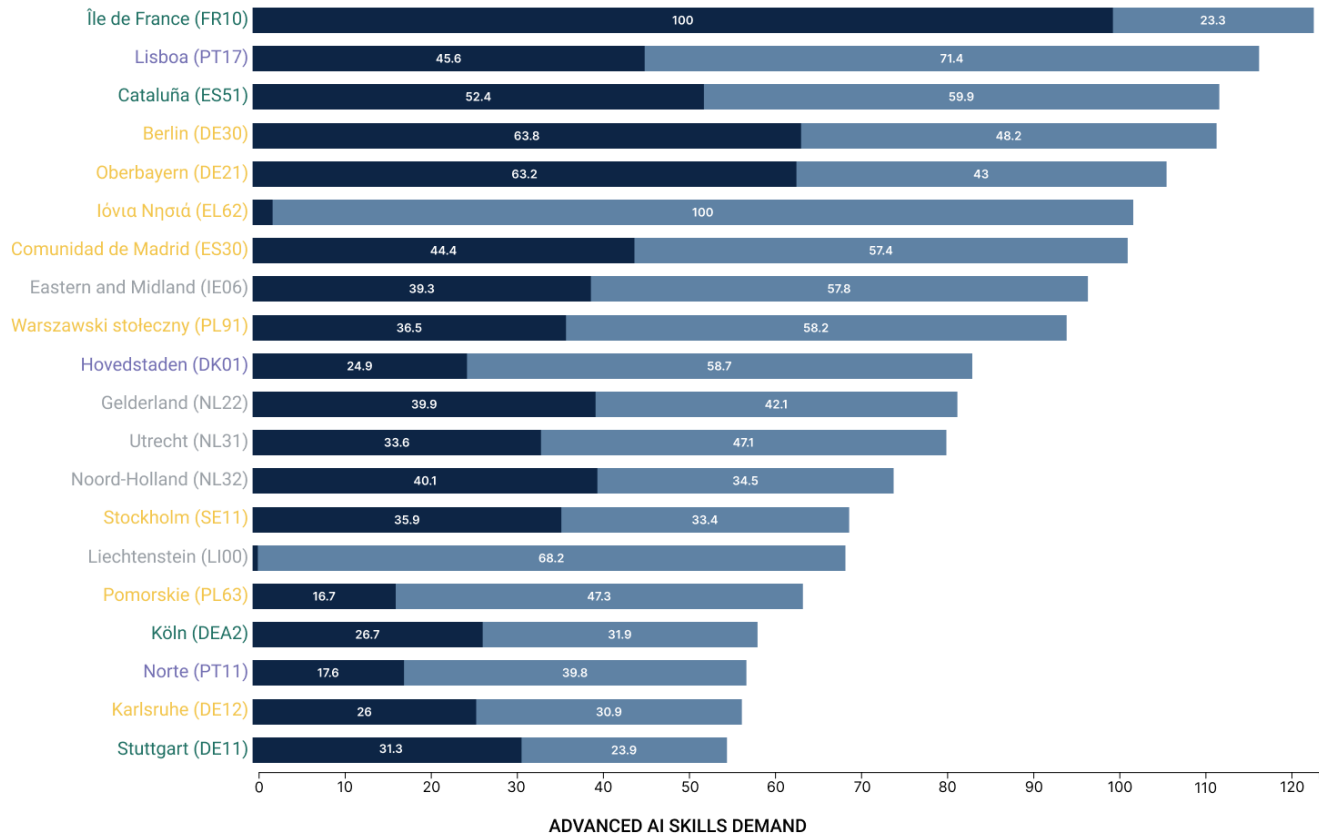
50% ?

40%

0-90%

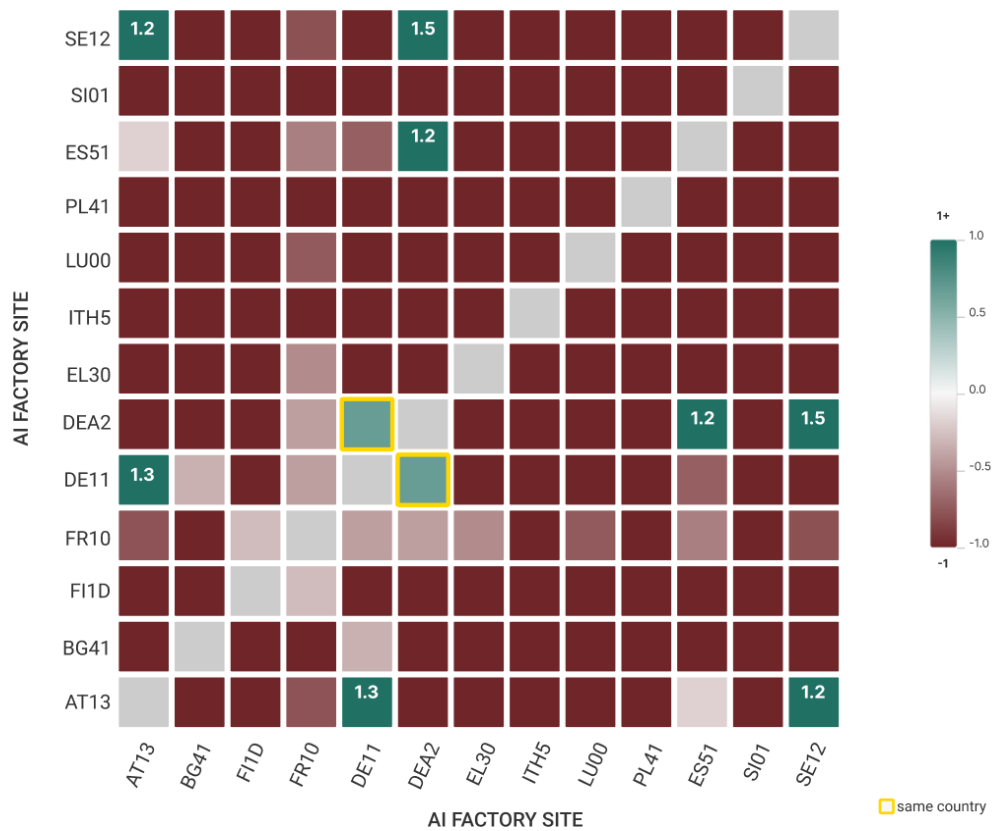
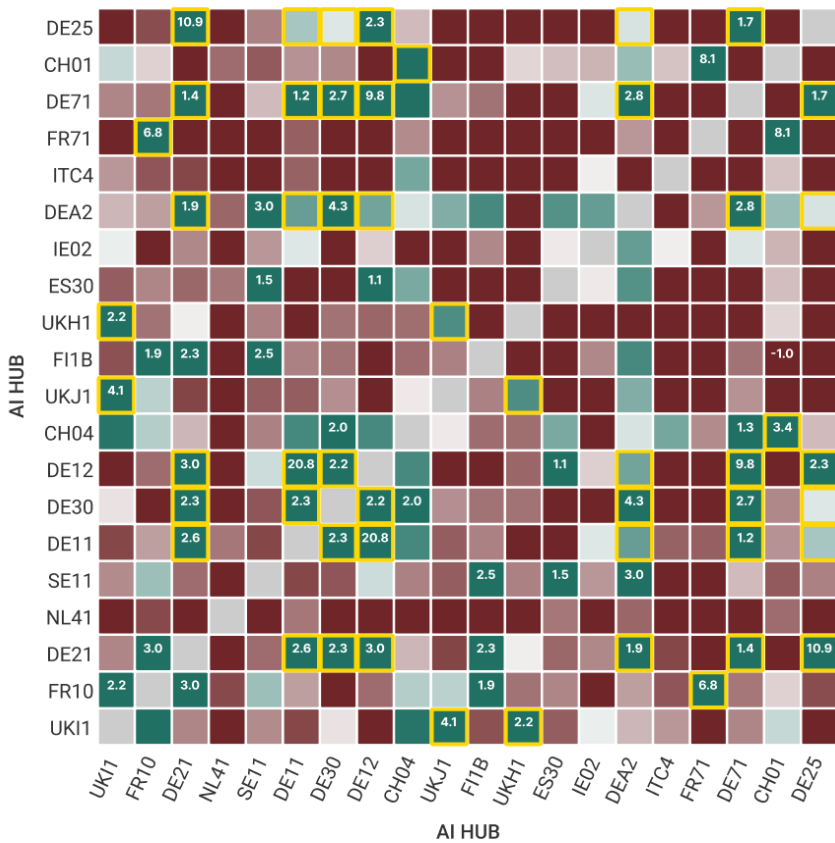
35-100%

● Country match
 ● NUTS-2 match
 ● Partner country
 ● No match
 ■ Number of vacancies
 ■ Share of vacancies



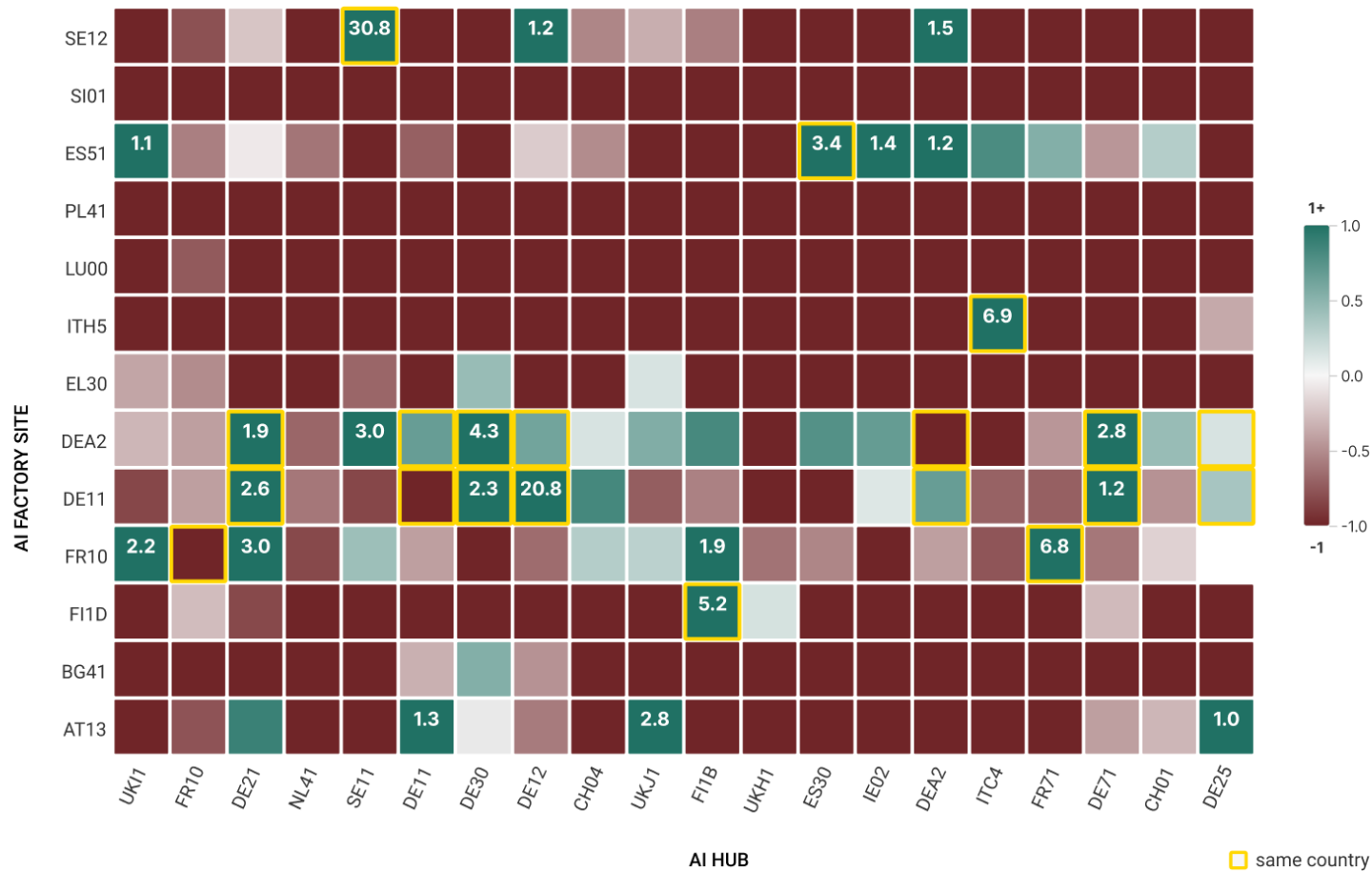
Where factories are located \neq where there is skills demand

Hubs regions cooperate more than factory regions



same country

Factories and hubs do not currently cooperate



The “Apply AI” strategy (1)

Sectoral flagships including targeted measures to boost AI adoption across 10 key industry sectors and the public sector



Healthcare and pharma



Mobility, transport and automotive



Robotics



Manufacturing, engineering and construction



Agrifood



Climate and environment



Electronic communications



Defence, security and space



Energy



Public sector



Cultural and creative sectors, and media