Opening Keynote

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Inference workloads drive demand for decentralised computing capacity close to the data source

AI inference applications are increasingly moving to the edge, such as edge data centres and end-user devices, driving the need for data processing closer to the source.

Estimates	2023	2028
Total datacentre workload (worldwide)	54 GW	90 GW
AI Workload	4.3 GW	13.5-20 GW
AI workload (% total)	8%	15-20%
AI workload (training vs inference)	20% training 80% inference	**15 % training 85% inference**
AI Workload (central vs edge)	95% central 5% edge	**50% central 50% edge**

Source: Schneider Electric

Europe's data centre capacity faces barriers and remains highly concentrated in geographical hubs

Some of the known **challenges** Europe is facing:

- **Slow identification** of sites
- Limited **access** to capital
- **Complex** and **fragmented** permitting procedures across MS
- Difficulties in accessing **energy and water**

A **multi-faceted capacity gap**

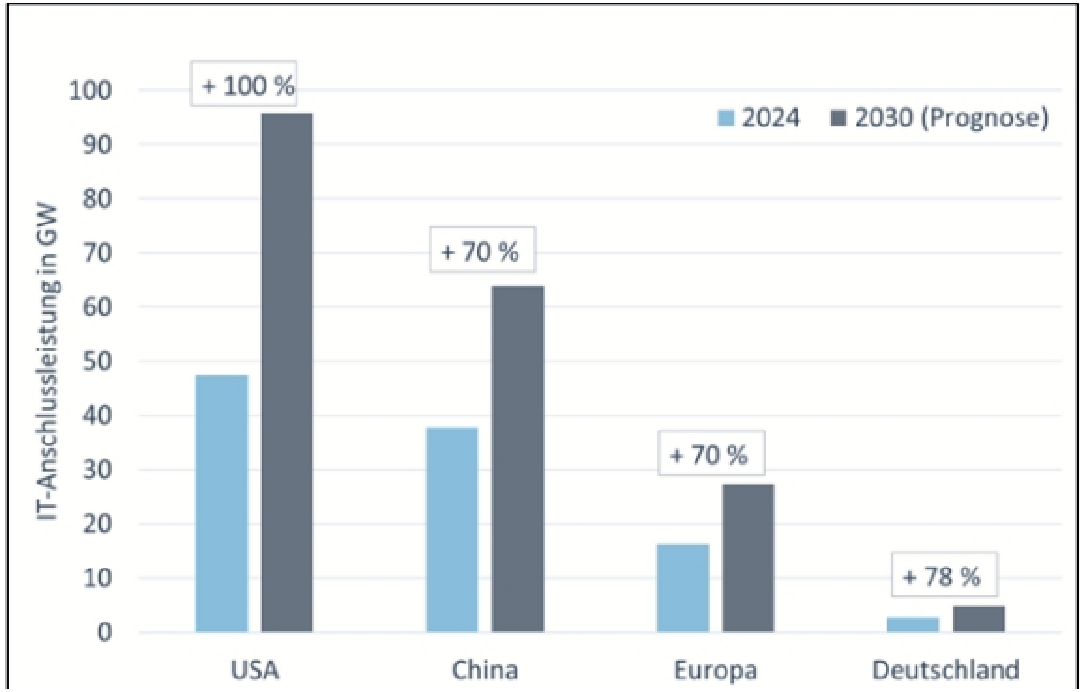
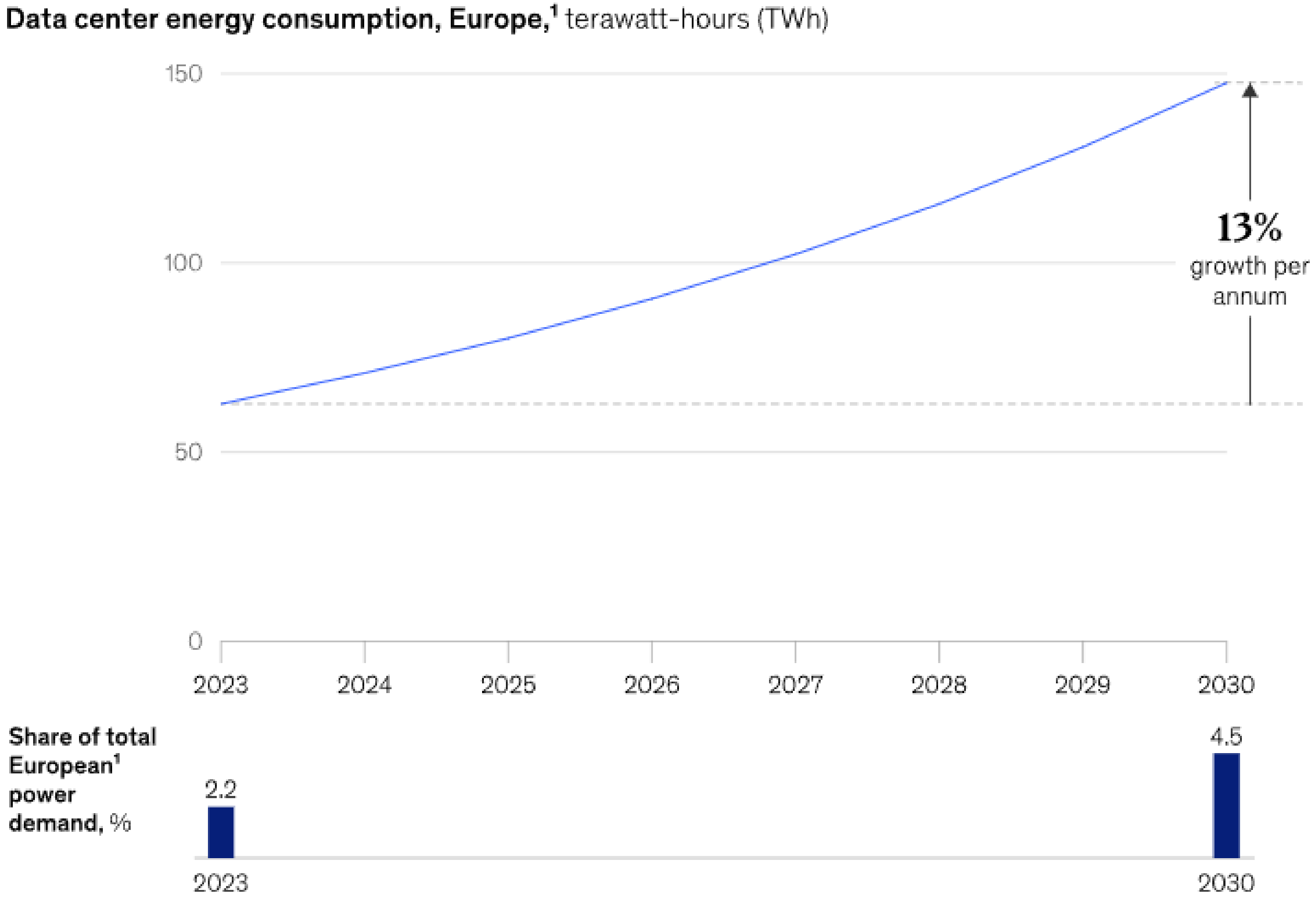


Figure 13: Estimate of the development of data center capacities in the USA, China, Europe and Germany in 2024 and 2030. source: Hintemann et al. (2024a)

Data centres are resource-intensive infrastructures

- Data centers are critical consumers of natural resources such as **energy and water** and tend to be geographically concentrated, leading to concerns about **power availability** and **water resilience**.



[1]EU-27 + the United Kingdom.
Source: Global Energy Perspective 2024; McKinsey analysis

Highly critical use cases require highly secure EU-based cloud capacity

As digitalisation of public services remains a priority for EU Member States based on the **digital decade targets,** there is growing concern about **high-risk vulnerabilities** to the EU's economic security due to the strong and one-sided reliance on non-EU based cloud capacity, including in strategic sectors.

Main economic security vulnerabilities:

- **Technology risks** (lock-in, lack of EU innovation, lack of access to latest technologies)
- **Confidentiality risks** (unlawful data access and transfer based on 3rd-country laws)
- **Operational autonomy** as another key consideration

*"The EU must have the ambition to […] **regain and retain control over data and sensitive cloud services**."*

(**Draghi Report on European Competitiveness,** Part B, Section 1, Chapter 3, Page 82)

Towards the creation of the AI Continent

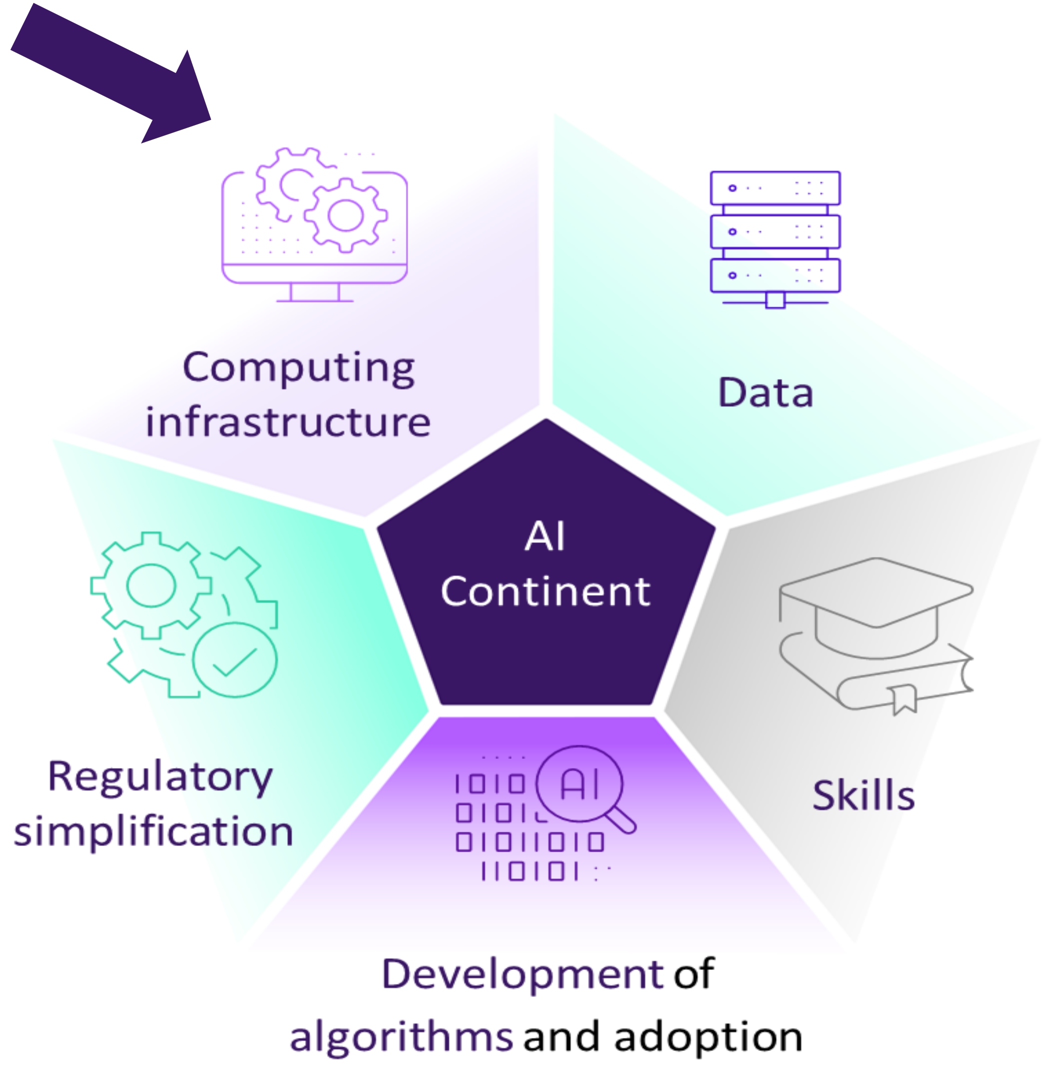
1. **Building a large-scale AI data and computing infrastructure**
   AI Factories and Gigafactories; ***Cloud and AI Development Act****;*

2. **Increasing access to large and high-quality data**
   Data Union Strategy; Data Labs; Common European Data Spaces;

3. **Developing algorithms and fostering AI adoption in strategic EU sectors**
   Apply AI Strategy, European Digital Innovation Hubs; GenAI4EU, Resource for AI Science in Europe;

4. **Strengthening AI skills and talents**
   AI Skills Academy; AI Literacy; Mobility of non-EU workers in the AI Sector;

5. **Regulatory simplification**
   AI Act Service Desk, ongoing *Stakeholder consultation.*



Objectives of a policy response

Cloud and AI Development Act

Pillar I: Research & Development	Pillar II: Deployment	Pillar III: Autonomy
• Make the EU a leader in the resource-efficient and sustainable data processing infrastructures, software, and services that enable the development and the adoption of AI	• At least triple the EU's data processing capacity with highly sustainable data centres in the next 5 to 7 years and bring it to a level that meets EU needs by 2035	• Create the right conditions for highly secure EU-based cloud capacity to serve highly critical use cases • Improve the diversity in available service offerings by fostering visibility of a larger pool of providers

Single EU-wide cloud policy for public administrations and public procurement

- Align Member States around a common framework supporting cloud uptake in the public sector through strategic public procurement and a consistent implementation of the Act

Research and Development - Objectives

Establish the EU as the global leader in AI-enabling technologies and infrastructures

Research, Development, and Innovation

1. By 2035, reach 100% European autonomy across the cloud and AI software stack

2. Develop sustainable AI infrastructures to achieve by 2035 an EU-wide average 1.15 PUE and 50% server utilisation

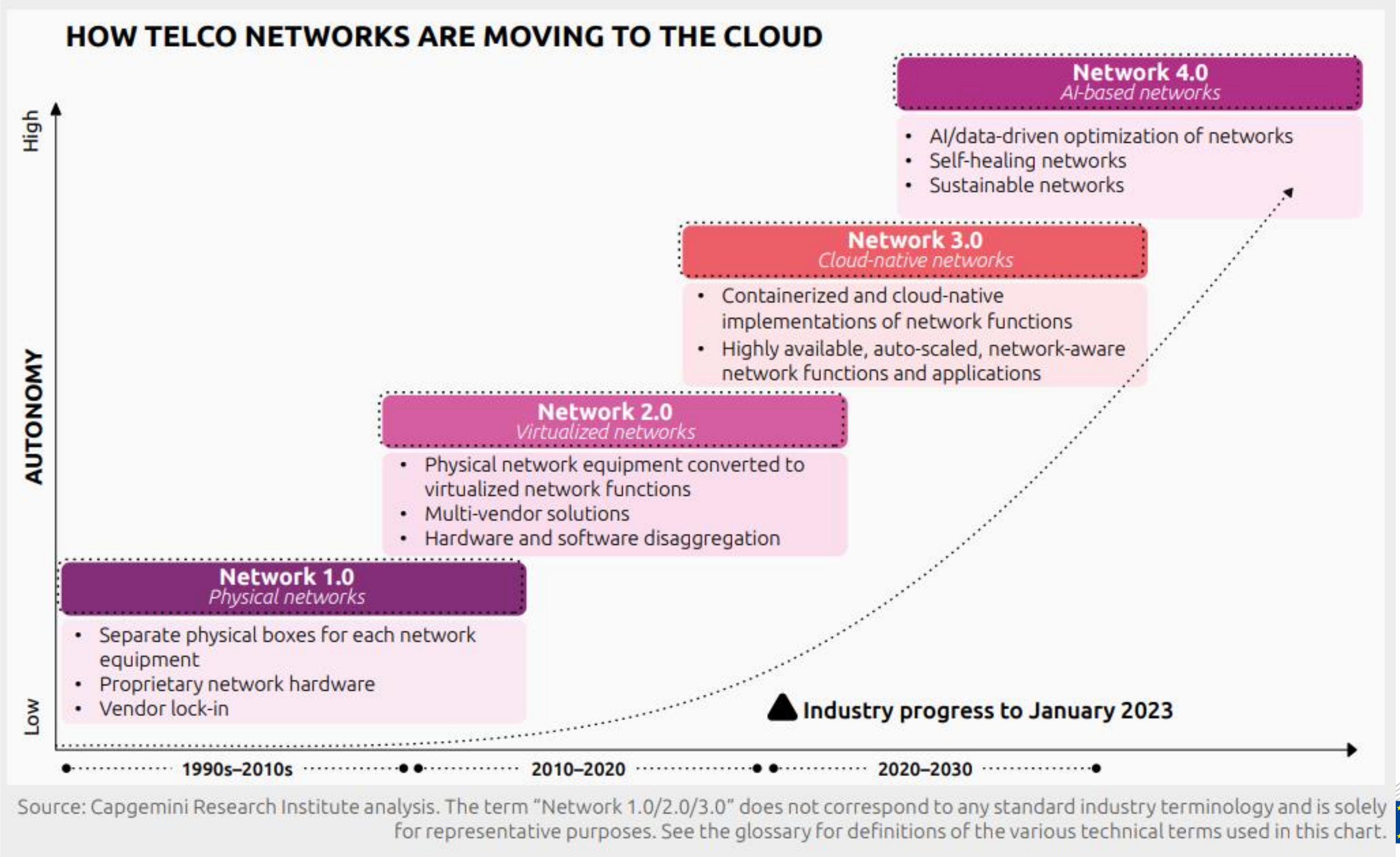
Deployment

3. Bring EU data centre capacity to a level that meets the needs of businesses and public administrations by 2035

Uptake

4. Boost cloud and AI adoption to 90% by 2035 in the public and private sectors, with a strong emphasis on SMEs

3C Networks ecosystem - Technology trends (1/2)



Source: Capgemini Research Institute - [Networks on cloud: A clear advantage](2023)

3C Networks ecosystem - Technology trends (2/2)

- **Transformation** of electronic communications networks and services **towards computing continuum**: from chips and high-speed processors to connectivity, cloud, edge, software and AI.
- **Convergence,** about **blurring boundaries between actors and new partnerships** in digital networks (but views diverge extent): telecom operators, cloud providers, content and application providers…
- Network infrastructure functions **virtualised/ softwarised and shifting to the cloud**; need for **orchestration** of resources to ensure efficiency seamless end-user experience.
- Trend towards **data and AI-centric** applications.
- **Major developments:** network sharing, separation of infrastructure and services, service platforms (NaaS), rise of IoT, Open RAN, telco cloud, edge cloud, network APIs, AI, sovereign cloud/edge services, quantum encryption.
- **Security and sustainability** considerations.

3C Networks ecosystem - Market challenges

EU's global revenue share of EU GDP in the ICT market has decreased by 10.5% between 2013 and 2022, substantially affecting productivity gains.

- Economic growth is increasingly captured by big tech non-EU players
- Europe risks lagging behind without a competitive cloud industry that can provide strategic autonomy for key digital services

The **European telecoms sector faces several challenges** that slow down the deployment of the latest generation of networks:

- Investment needs of more than €200 billion
- Fragmented Single Market issues
- 80% of the technologies and services crucial for Europe's digital transformation are still designed and manufactured outside the EU. ==> Risk of dependency on non-EU providers
- EU is home to just 14% of the world's digital companies ==> Need to build up industrial capacities

3C Networks ecosystem - The political vision of the White Paper

- Aligned with major themes in Political Guidelines of Commission President
  - Ensuring **competitiveness** of European industry and businesses
  - Investing in **strategic cutting-edge technologies** (e.g., with the European Competitiveness Fund)
  - Momentum to **complete the Single Market; R&I at the heart** of EU economy
  - Importance of reaching **digital targets** for productivity
  - Investment needs can be realised through proven funding instruments such as IPCEIs or **public-private partnerships**, e.g., Joint Undertakings

3C Networks ecosystem - White Paper - Key objectives from pillar I

- Telco edge cloud integrated infrastructure and platforms spurring innovation in different domains
- Maintain telco operational efficiency towards supporting and scaling up diverse application and services
- Towards cloud-native networks allowing seamless orchestration of device, edge, cloud resources
- Security/reliability, decentralised intelligence, mobility of edge nodes, reconfigurability (Over-the-air)
- Enabling cross-domain functions and services preserving security and sustainability

3C scenarios in White Paper - How to master Europe's digital infrastructure needs?

Pillar I: "Connected Collaborative Computing" Network ("3C Network"):

- **Large-scale pilots** (EU-funded projects) on end-to-end supply infrastructures integrating Telco-Edge-Cloud deployments towards a "Connected Collaborative Computing Networks": planned calls under Horizon Europe and CEF in 2024-2026
- Possible **new infrastructure-focussed IPCEI**
- Consider aligning different funding sources (EU and national, public and private) in **coordinated investment framework**, in support of a truly Digital Single Market for telecoms
- Explore **coordinating role for the "Smart Networks and Services" Joint Undertaking (SNS JU)**

Thank you

European Commission