lateral space

Europe in the *Age of AI*

INTELLIGENCE, MADE REAL.

Where Europe really stands in the artificial intelligence value chain: from electricity and semiconductors through to models, applications and the processes in which the technology produces economic results.

2026 EDITION

LATERALSPACE.AI

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01 · FOREWORD

Where Europe really stands in the *AI race.*

To understand where Europe stands, you have to follow the whole artificial intelligence value chain: from electricity and semiconductors through to models, applications and the processes in which the technology produces economic results.

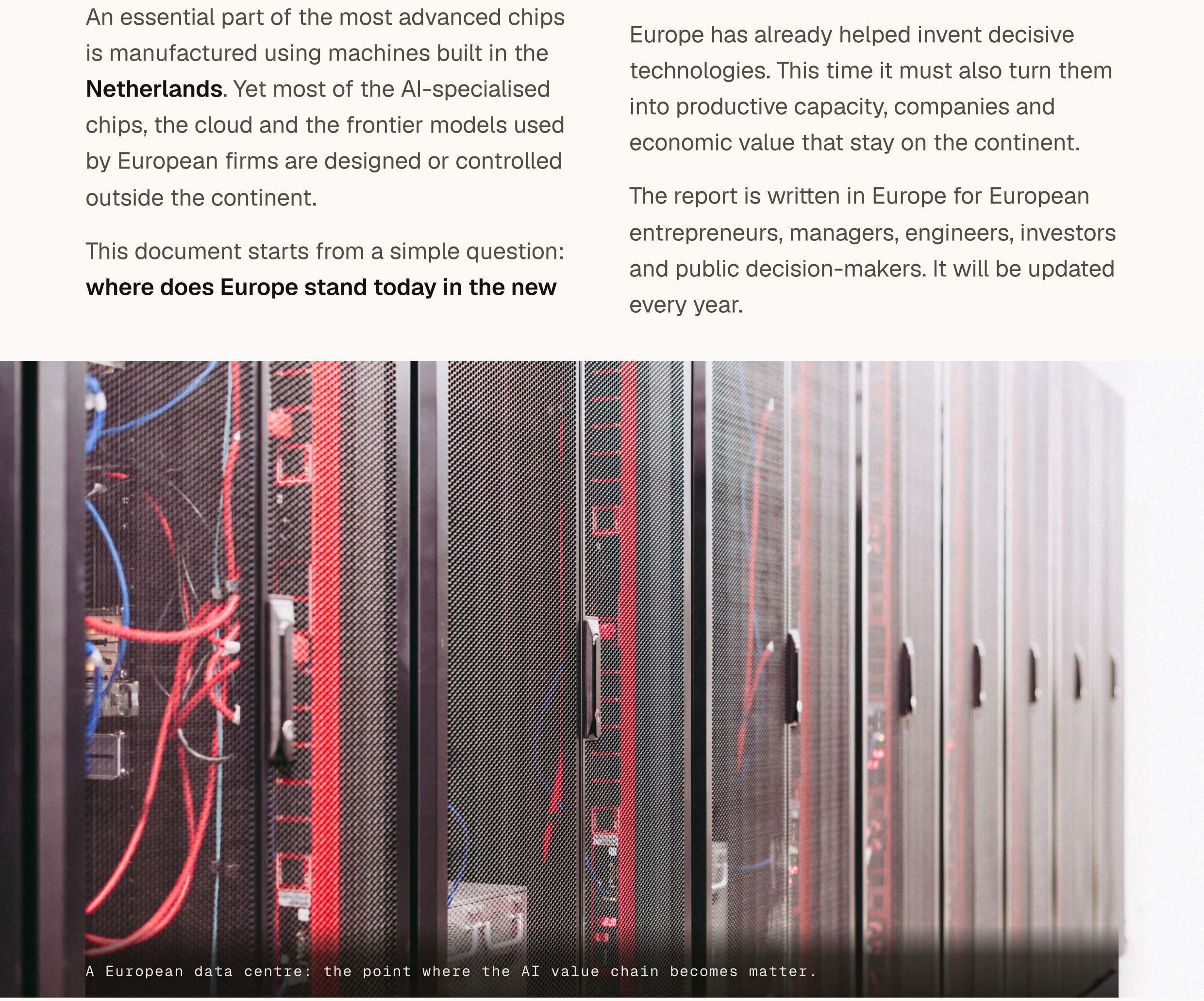
An essential part of the most advanced chips is manufactured using machines built in the **Netherlands**. Yet most of the AI-specialised chips, the cloud and the frontier models used by European firms are designed or controlled outside the continent.

This document starts from a simple question: **where does Europe stand today in the new artificial intelligence value chain?**

To answer it, the report distinguishes the steps where Europe holds technologies that are hard to replace, those where it competes, and those where it depends on a handful of external suppliers.

Europe has already helped invent decisive technologies. This time it must also turn them into productive capacity, companies and economic value that stay on the continent.

The report is written in Europe for European entrepreneurs, managers, engineers, investors and public decision-makers. It will be updated every year.



A European data centre: the point where the AI value chain becomes matter.

The report uses information available up to 31 July 2026. Codes in square brackets refer to the sources on page 39.

02 · EUROPE’S POSITION

Europe's *barbell.*

Technologies that are hard to replace upstream, a large industrial economy downstream, dependencies in the middle.

UPSTREAM	IN THE MIDDLE	DOWNSTREAM
capabilities that are hard to replace	where the barbell narrows	a large industrial base

THREE EUROPEAN ORGANISATIONS

ASML builds the EUV lithography machines in the Netherlands. **ZEISS** makes the precision optical system in Germany. **imec** trials manufacturing processes in Belgium together with industry.

ASML · ZEISS · imec

photonics · power semiconductors · electrical equipment

SIX DEPENDENCIES

None of these capabilities is controlled in Europe, and none could be replaced quickly.

AI chips · advanced manufacturing · high-bandwidth memory · global cloud · generalist models · growth capital

EIGHT SECTORS

Here AI will have to be turned into **products, decisions and new ways of working**. This is the part of the chain where Europe has scale, customers and responsibility for the outcome. The advantage cannot be bought: it is built inside processes the company already governs.

manufacturing · energy · automotive · pharmaceuticals · engineering · finance · aerospace · public services

The figure summarises different markets and does not represent an aggregate European share of the AI economy. ● INFERENCE

03 · THE VALUE CHAIN

The value chain, in four *steps.*

COMPONENTS

72%

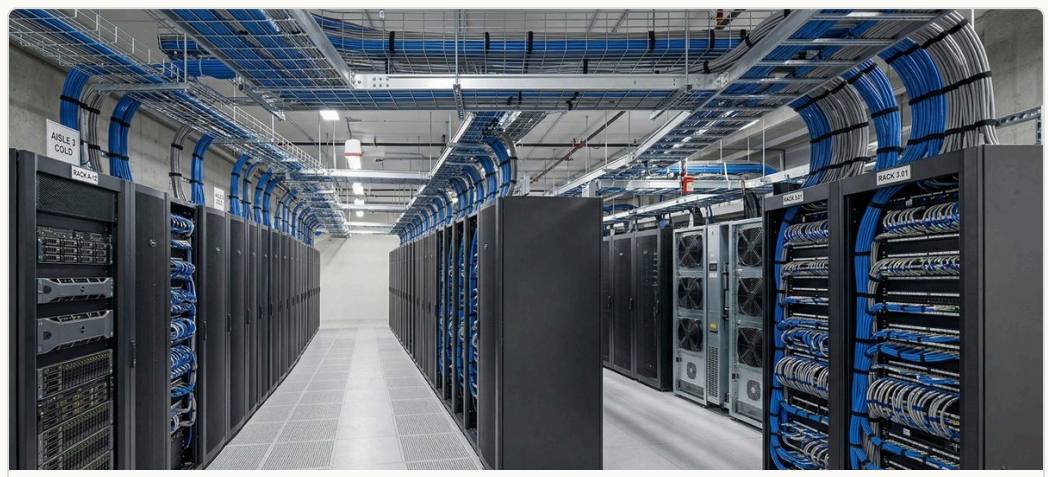
Share of global pure-play foundry revenue attributed to Taiwan's TSMC in the first quarter of 2026.

TrendForce / Counterpoint

9%

European Union share of the global semiconductor market in 2025.

European Commission



INFRASTRUCTURE

15%

Share of European cloud infrastructure services revenue held by European providers in 2024.

Synergy Research Group

415 → 945 TWh

Global data centre electricity consumption: 2024 estimate and 2030 base case.

International Energy Agency

MODELS AND CAPITAL

$285.9 / 12.4bn

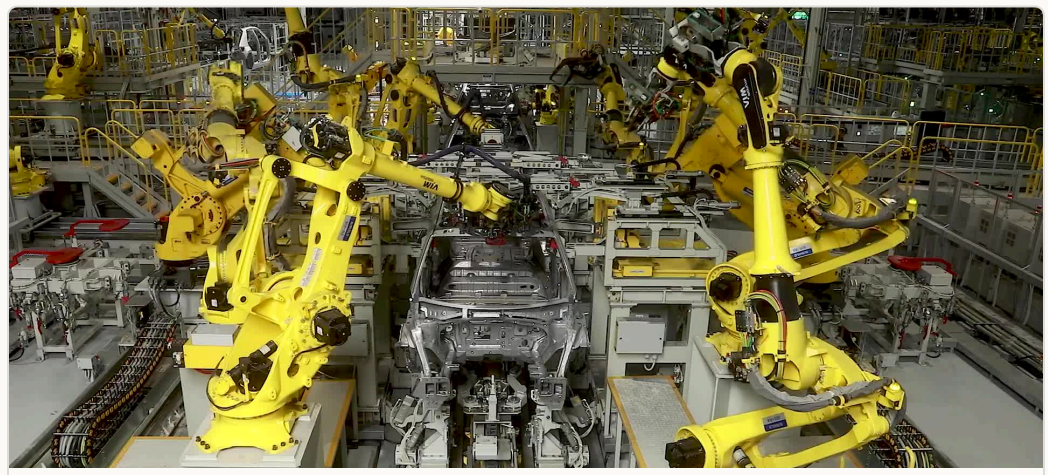
Private AI investment in 2025 in the United States and China.

Stanford AI Index

$5.9 / 4.36 / 3.89bn

Private AI investment in 2025 in the three largest European markets: the United Kingdom, France and Germany.

Stanford AI Index



ADOPTION

20%

European firms using at least one AI technology in 2025. The figure was 8% in 2023.

Eurostat

42% → 5.2%

Gap between Denmark and Romania, the two extremes recorded in the European Union.

Eurostat

The four steps measure different markets and populations: the values cannot be added together. ● FACT

I

Upstream: the matter of intelligence.

Electricity, semiconductor manufacturing equipment, chips, memory, data centres and cloud. This is the stretch of the chain where Europe owns technologies no one else can build, and at the same time the one where it depends most on a few external suppliers.

Cleanroom for electronic component manufacturing

04 · THE VALUE CHAIN

How AI becomes *value.*

02 · HERE EUROPE IS STRONG

Semiconductor equipment

ASML · Netherlands · EUV lithography
ZEISS · Germany · precision optics
imec · Belgium · experimental processes
ASM · Netherlands · atomic layer deposition

The machines that print circuits onto silicon. The most advanced in the world are built in the Netherlands, with German optics.

A CAPABILITY THAT IS HARD TO REPLACE

01 **Electricity**
Without available and stable power there is no large-scale compute. It is the first physical constraint, not a rhetorical preamble.

03 **Chips and memory**
Specialised chips run the calculations; high-bandwidth memory feeds them with data. Designed and manufactured almost entirely outside Europe.

04 **Servers and data centres**
Chips become machines, machines become buildings. Here Europe builds, but on components it does not produce.

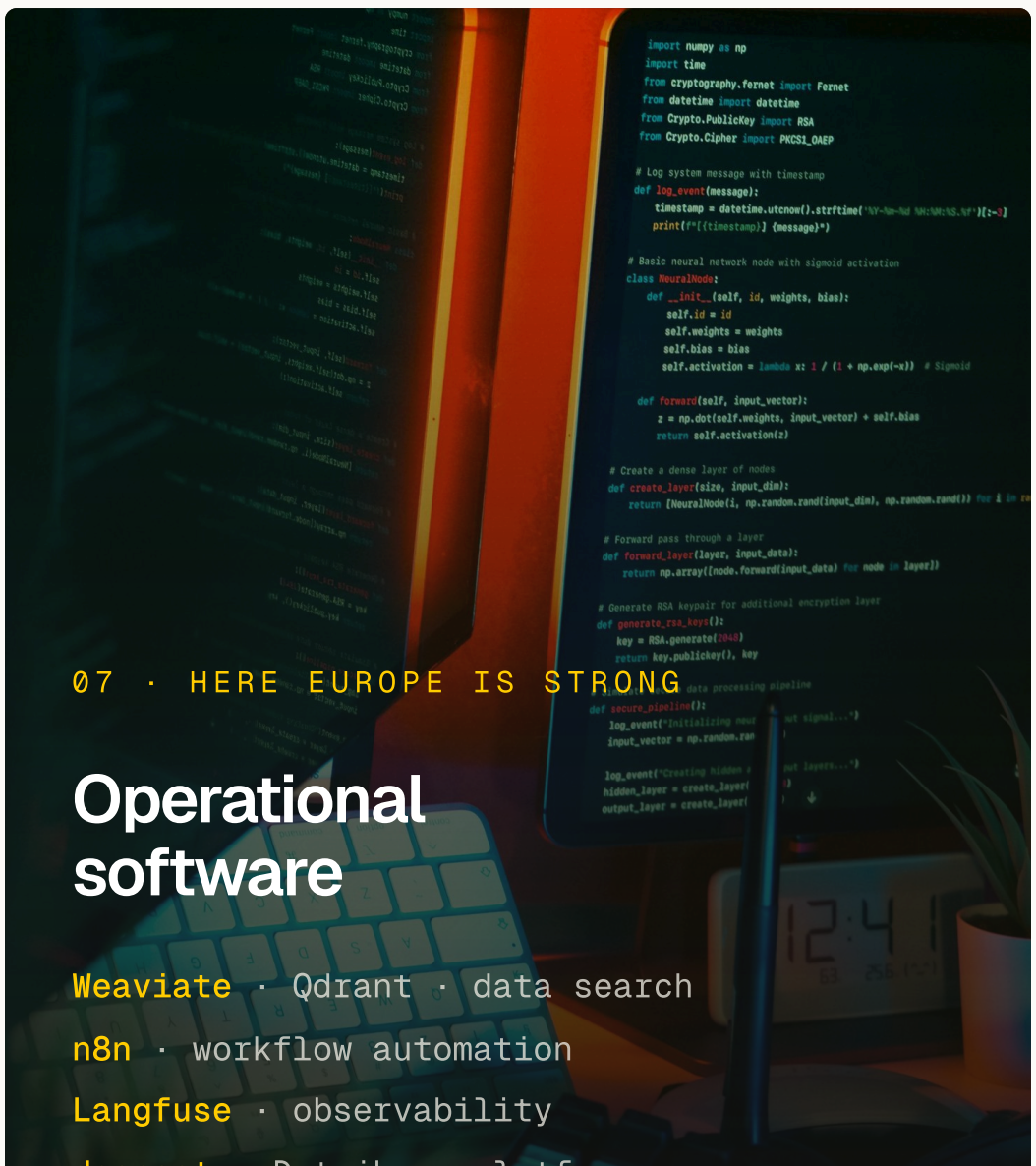
05 **Cloud**
Compute capacity sold as a service. Three global providers cover most of the European market.

PLANT	CAPITAL	SKILLS
Not improvised	**Years before revenue**	**Built over years**
The fabs and machines that make production possible. They do not move.	Multi-year investment before the first revenue. It is the filter that reduces the number of possible operators.	Process technicians, production engineers, cleanroom staff.

In the early steps what counts is plant, capital, intellectual property and manufacturing capacity. Highlighted: the step where Europe holds a capability that is hard to replace. ● FACT

05 · THE VALUE CHAIN

From cloud to *outcome.*

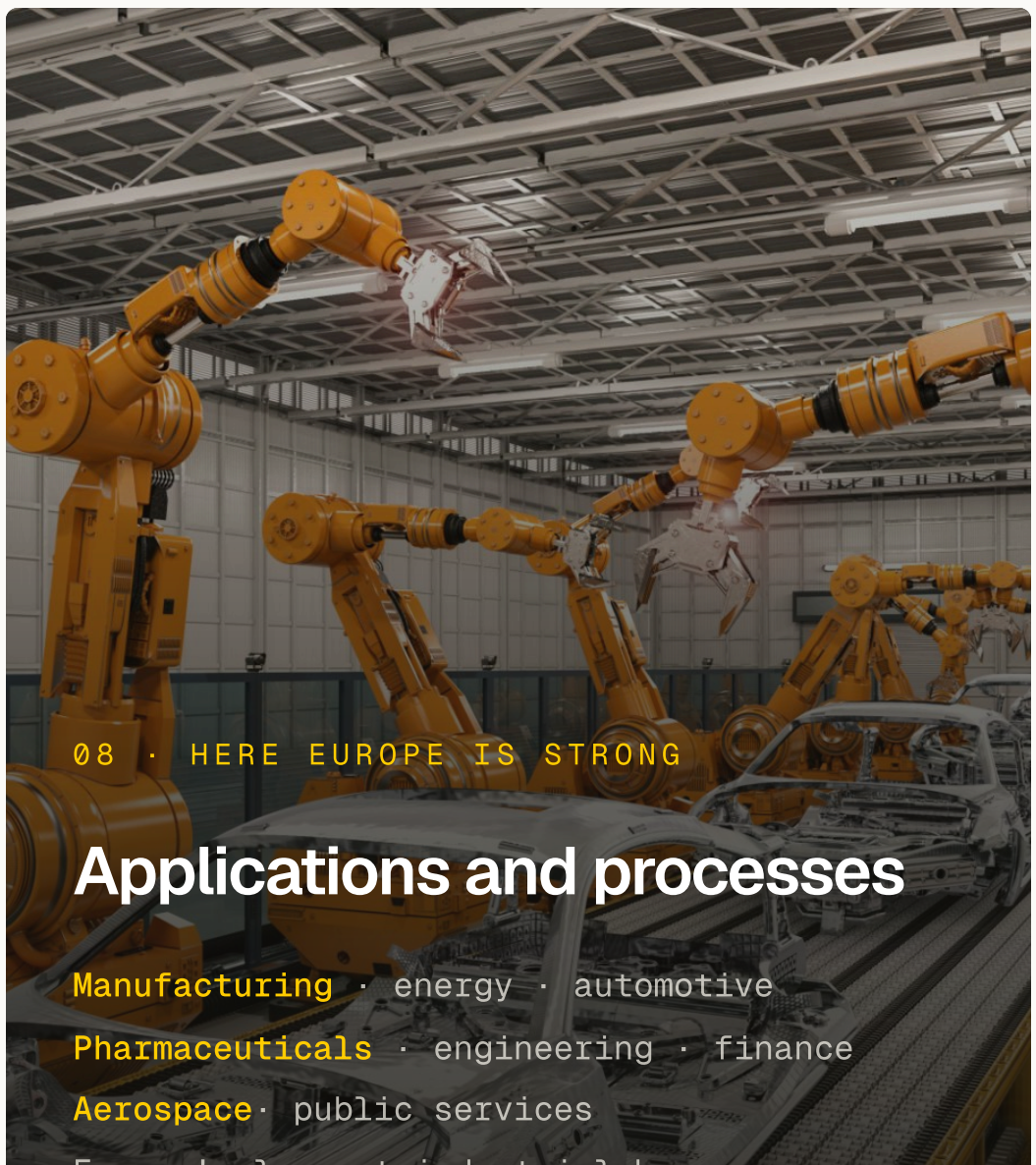


07 · HERE EUROPE IS STRONG

Operational software

Weaviate · Qdrant · data search
n8n · workflow automation
Langfuse · observability
deepset · Dataiku · platforms

The layer that connects a model to a company's data and systems. Here there are credible and growing European firms.



08 · HERE EUROPE IS STRONG

Applications and processes

Manufacturing · energy · automotive
Pharmaceuticals · engineering · finance
Aerospace · public services
Europe's largest industrial base

The moment technology enters real work: a tender, a diagnosis, a maintenance job, a pricing decision.

06 **Models**
The trained systems that generate text, images and code. Europe has competitive companies, not yet at the absolute frontier.

09 **Economic outcome**
Revenue, margin, productive capacity. It is the only link that matters to whoever runs a company, and the last to arrive.

DISTRIBUTION

Existing channels

Reaching the customer matters more than the technology used. Here Europe has channels, contracts and relationships.

DATA ACCESS

They stay in companies

Whoever knows the process starts with an advantage over whoever owns only the model.

RESPONSIBILITY

A company answers

A company answers for the outcome, not a model. Trust becomes economic advantage.

In the final steps advantage cannot be bought: it is built inside processes the company already goverrna.

Highlighted: the two steps where Europe has its own companies and capabilities. ● FACT

01

The AI race runs through the power grid.

Before the models and before the chips comes electricity. The ability to connect a data centre to the grid, within reasonable timeframes and at a sustainable price, has become a strategic variable for where compute is located in Europe.

High-voltage transformer substation

06 · ENERGY

The European firms powering the *data centres.*

Schneider Electric, Siemens, ABB, Legrand and Prysmian supply electrical systems, cabling, automation and cooling.

A data centre requires land, permits, a grid connection, transformers, switchgear, cabling, cooling and engineering capacity. **These capabilities exist in Europe.**

The specialised chips and most of the software come largely from outside Europe. The infrastructure that powers them and keeps them running, however, remains largely European.

Schneider Electric · SIEMENS · ABB · Legrand · Prysmian

What determines the choice of a site

Grid connection capacity

How many megawatts the grid operator can guarantee, and within how many months or years. In many European areas the queue for a new connection is measured in years: this is the constraint that decides where compute can be installed, before the cost of energy. An AI facility needs tens of megawatts continuously, and a few large sites can absorb the capacity available in a single region.

Energy price

The cost per megawatt-hour affects the income statement for the whole life of the facility, not just the initial investment. This is why location follows the availability of generation, not the demand for compute.

Cooling and water

Higher compute densities require liquid cooling. Local constraints on water, noise and heat recovery quickly become permitting constraints, and lengthen delivery times.

Latency and data proximity

For training, distance matters little; for inference inside a business process it matters a great deal. This is why part of the capacity will stay close to users.

Company documentation for business scope; International Energy Agency for the consumption outlook [S11] [S12][S13]. ● COMPANY-REPORTED

07 · DATA CENTRES

Data centre consumption could *more than double.*

According to the International Energy Agency, data centres consumed about 415 TWh in 2024. In the base case, consumption reaches 945 TWh by 2030.

Why it is a constraint

Demand is growing faster than available grid capacity. The limiting factor is not capital, but the time needed to connect new facilities.

The limit of the figure

The base case is not a forecast: it describes a trajectory consistent with announced policies, and it changes if those policies change.

A useful distinction: **training** a model concentrates a great deal of power for weeks in a single place; **inference**, the everyday use of the model, spreads a continuous load closer to users. These are two different energy problems, and two different location decisions. The constraint shows up locally: a few large facilities can absorb the grid capacity available in a given region.

AI Factories

Facilities announced to make compute capacity available to European firms and researchers. The figure to watch is capacity actually installed, not capacity announced.

Gigafactories

Larger-scale facilities, intended for training frontier models. They require grid connections that are not available today in many areas.

What to check

Years pass between announcement and operation: grid connection, cooling, supply chains and specialised staff set the real timetable.

Global data centre electricity consumption. International Energy Agency: 2024 estimate and 2030 base case. *Inference* means running a model that has already been trained. ● FACT

08 · SEMICONDUCTORS

The European machines behind the most *advanced chips.*

No leading-edge chip exists without passing through this chain. This is the stretch where dependency runs in Europe’s favour: replacing these capabilities would take years and skills that do not exist elsewhere today.

NETHERLANDS · VELDHOVEN

ASML builds the machine

Extreme ultraviolet lithography prints the circuits onto silicon with nanometre precision. It is the only manufacturer of these machines in the world.

↓

GERMANY · OBERKOCHEN

ZEISS builds the optical system

Mirrors with imperfections below fractions of a nanometre. Without this optics the machine does not work: it is a supplier that cannot be replaced in the short term.

↓

BELGIUM · LEUVEN

imec trials next-generation processes

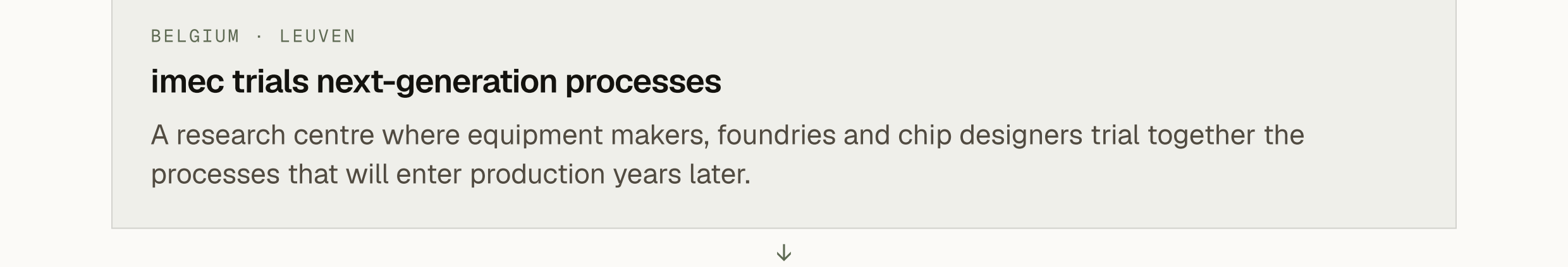
A research centre where equipment makers, foundries and chip designers trial together the processes that will enter production years later.

↓

TAIWAN, KOREA, UNITED STATES

Foundries use these technologies to manufacture the chips

This is where Europe's position breaks: the most advanced manufacturing happens outside the continent, in particular in Taiwan.



imec, Leuven: the laboratory where the global semiconductor industry trials the next generation. Photo © imec

A *strategic bottleneck* is a step in the chain where very few suppliers are able to operate and substitution takes years. ● FACT

09 · CHIPS ACT

Europe’s 20% target remains *distant.*

The stated objective concerns Europe’s share of the global semiconductor chain, not self-sufficiency: no region in the world produces the entire chain on its own.

What the programme can change

Manufacturing capacity on mature and specialised nodes, where Europe already has industrial customers: automotive, power, sensors.

Shared research infrastructure, pilot lines and access to experimentation for firms that could not otherwise afford it.

Skills: process technicians, production engineers, cleanroom staff.

What cannot change in the short term

Manufacturing at the most advanced nodes, which requires multi-year investment and a scale of demand Europe does not generate on its own.

The design of AI-specialised chips, today concentrated in a handful of US companies.

High-bandwidth memory, produced by three Asian companies.

Raising Europe’s share of the global chain is a different objective, and a more realistic one, than building a self-contained chain.

The European Court of Auditors considers the 20% target aspirational. What is measured is Europe’s share of the global chain, not the ability to produce the entire chain independently.

• FACT

9%

EU share of the global semiconductor chain, reported in 2026.

11.7%

2030 projection reported by the European Court of Auditors.

20%

Stated policy target for 2030.

European Commission, European Chips Act. • FACT

10 · ACCELERATORS AND MEMORY

AI chips do not work *alone.*

Accelerators are microchips designed to run many of the calculations required by AI models in parallel. To work at scale they need very fast memory, high-capacity interconnects and packaging techniques that keep the components close together.

High-bandwidth memory: three suppliers worldwide

SK hynix

South Korea · leading supplier of HBM memory for high-end accelerators.

Samsung

South Korea · produces memory and, through its foundry division, chips to order.

Micron

United States · third-largest global player in high-bandwidth memory.

None of the three companies is European. High-bandwidth memory is today one of the tightest dependencies in the whole chain: production capacity is limited and allocated years in advance.

Advanced packaging

The techniques that assemble accelerator and memory onto a single substrate, keeping them close enough that data movement does not become the bottleneck. It is an industrial step distinct from chip fabrication, and concentrated in East Asia.

Networking

The interconnects that join thousands of accelerators into a single computing system. At this scale the internal network becomes part of the computer, not an accessory.

Official logos from the respective company media kits. FACT

11 · MANUFACTURING

Foundries make chips designed by *other firms.*

01 · DESIGNS

NVIDIA and the other designers

They design the accelerator architecture. They own no fabs: they sell a design and a software ecosystem.

↓

02 · MANUFACTURES

TSMC and the other foundries

They turn the design into silicon, using European machines. TSMC is Taiwanese, and on the most advanced nodes it has very few competitors.

↓

03 · FEEDS

SK hynix, Samsung, Micron

They supply the high-bandwidth memory without which the accelerator remains unusable at scale.

↓

04 · ASSEMBLES AND INSTALLS

Packaging, networking, data centres

The complete system is assembled and installed in facilities consuming tens of megawatts.

↓

05 · BUYS AND RESELLS AS A SERVICE

Global-scale cloud providers and frontier laboratories

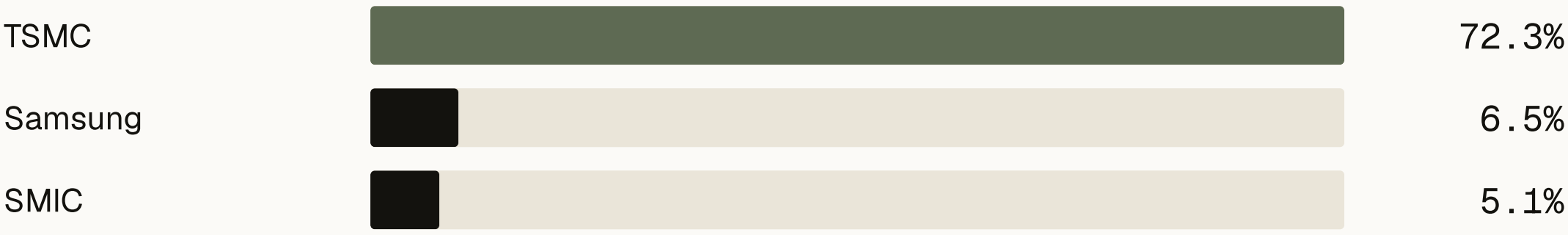
They are the main buyers. They resell compute capacity to companies, including European ones.

Official logos from the respective company media kits. ● FACT

12 · FOUNDRIES

TSMC holds about three quarters of *pure-play foundry revenue.*

Pure-play foundries manufacture to order for companies that design chips without owning fabs. It is the most concentrated step in the entire chain.



Share of global pure-play foundry revenue, first quarter 2026. TrendForce; Counterpoint estimates TSMC at 73%, Samsung at 7% and SMIC at 5%. ● COMPANY-REPORTED

Why it matters

A share of this size means that a disruption in a single country propagates through the whole global chain, with no immediate alternatives.

The limit of the figure

The share refers to the pure-play foundry market, not the whole semiconductor market: these are different perimeters and should not be conflated.

An advanced semiconductor fab takes years to build and tens of billions to fund: this is what makes the concentration hard to reverse.

02

Where the server sits is not enough.

When a European company uses a frontier model, that computation happens inside facilities like this one. The strategic question is not where the building is, but who controls its capacity, its price and the terms of access.

Corridor of a modular data centre · photo Tõnu Tunnel

13 · CLOUD

Three groups control about two thirds of the *global cloud.*

Amazon Web Services, Microsoft Azure and Google Cloud account for about two thirds of the global market.

aws	Azure	Google Cloud	
UNITED STATES	UNITED STATES	UNITED STATES	FRANCE

GLOBAL

3

Providers cover most of the cloud infrastructure services market.

EUROPE

OVH

The largest European operator by scale, positioned on sovereignty and price.

CONSEQUENCE

↗

The cost of inference for a European company depends on price lists set outside the continent.

LEVA

↔

Portability between providers is the main contractual countermeasure available.

In the European market the share held by local providers fell from 29% in 2017 to 15% in 2024: the growth in their revenues did not offset the faster growth of the large US operators.

● COMPANY-REPORTED

2017

European providers accounted for **29%** of the continental cloud market.

2024

Their share had fallen to **15%**. Amazon, Microsoft and Google together reached **70%**.

European providers' revenues did grow. They grew more slowly than those of the three large US operators.

Market shares for individual providers vary by perimeter definition and by source: they should be reported separately, not aggregated. ● INFERENCE

II

In the middle: models, talent, tools, capital.

Europe trains some of the best researchers in the world and has credible companies in the layer that connects models to business processes. The weak point is not skill: it is the ability to retain the value that skill generates.

Research building, European university campus

14 · EUROPEAN MODELS

Europe appears in the benchmarks with few *laboratories.*

France’s Mistral is Europe’s leading generalist laboratory. Germany’s DeepL and Black Forest Labs show the value of specialisation.

Mistral

Mistral AI

France. Generalist and open models, with a European distribution strategy and enterprise presence.

Helsing

Germany. Defence software and autonomous systems: AI applied to a sovereign industrial domain.

Black Forest Labs

Black Forest Labs

Germany. Generative image models, widely adopted in creative pipelines.

Aleph

Aleph Alpha

Germany. Positioned on data sovereignty and the European public sector.

DeepL

DeepL

Germany. Higher-quality machine translation than generalists in its own domain.

stability.ai

Stability AI

United Kingdom. Open generative models, with a more discontinuous corporate path.

A benchmark result captures a technical capability on a specific date, on a specific task. It does not indicate market share, it does not indicate adoption and it is not comparable across different measurements. When we cite a benchmark, we state the date, the models compared and the limits of the metric. • INFERENCE

Official logos from the respective company media kits. • COMPANY-REPORTED

15 · TALENT

Where people work matters as much as where they *trained.*

The selection distinguishes scientific recognition from industrial responsibility. It is not a ranking.

Geoffrey Hinton

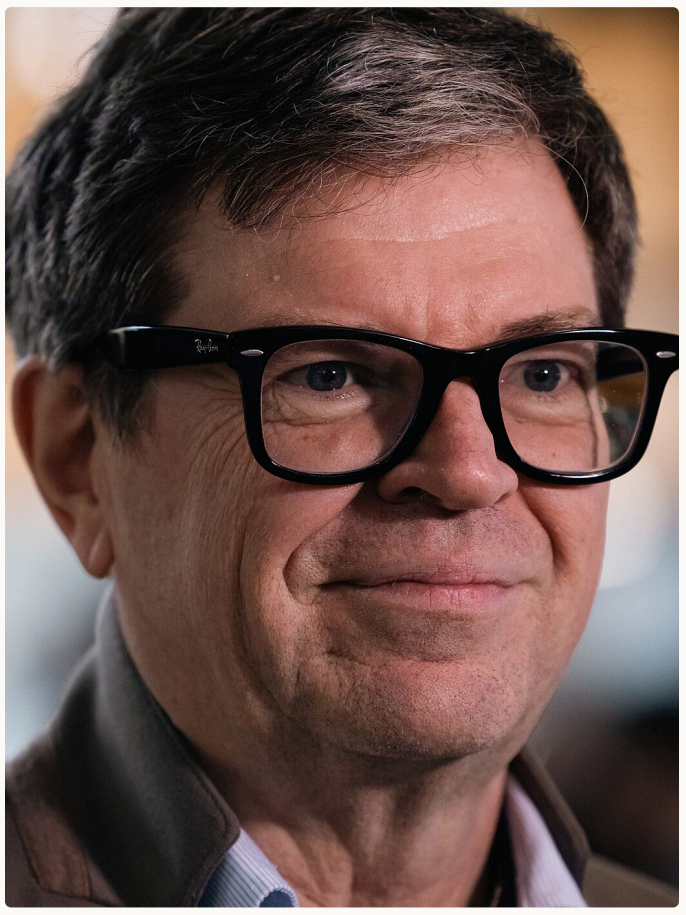
Origin: United Kingdom
Work: Canada, University of Toronto
Contribution: foundations of deep learning

Photo: Wikimedia Commons

Demis Hassabis

Origin: United Kingdom
Work: London, US-owned laboratory
Contribution: reinforcement learning, computational biology

Photo: Wikimedia Commons



Yann LeCun

Origin: France
Work: United States, New York
Contribution: convolutional networks, self-supervised learning

Photo: Wikimedia Commons

Europe trains high-level researchers and engineers. When compute, capital and large customers sit elsewhere, products, patents and company ownership tend to move there too.

Scientific recognition and industrial responsibility measure different things. Prizes and citations stay tied to the person and the institution that hosted them; leading a laboratory or a product means deciding where to invest compute and capital, and that is where it is settled who retains the value.

The photographs are public portraits under a compatible licence. Origin and place of work are listed separately because they measure different things. ● FACT

16 · RESEARCH NETWORK

European research is distributed across many *institutions.*

ELLIS is a distributed network: universities and centres stay in their own cities and collaborate through shared scientific programmes, doctoral training and researcher exchanges.

Shared programmes

Research areas shared across sites, with a single scientific review.

European doctorate

Programmes with dual supervision across two sites in two countries.

Mobility

Researcher exchanges that make the network a real community rather than a formal agreement.

Official ELLIS list, August 2026: 47 sites in 19 countries. For national units the map shows a representative point. FACT

17 · FROM MODEL TO PROCESS

What is needed between a model and a *process.*

A model becomes a business application when it can find the right data, connect the systems, respect permissions and leave a record of its own actions.

01

Finding the right documents and data

Retrieving, among millions of company documents, the few needed to answer. Without this step the model invents.

↓

02

Connecting enterprise software

Reading and writing in the systems the company already uses: ERP, CRM, archivio documentale, posta.

↓

03

Control costs, latency and errors

Observing what the system asked the model, what it cost, how long it took and where it went wrong.

↓

04

Authorise, test and govern

Defining who can do what, testing the system before putting it into production, recording the decisions.

> It is the least visible and most defensible layer of the chain: it does not require billions in capital like training a frontier model, and it lives close to the customer’s data and processes.

● INFERENCE · Lateral Space analysis of the structure of the operational layer.

18 · OPERATIONAL LAYER

European examples in the operational layer *of AI.*

Weaviate

Netherlands. Semantic search in enterprise data.

Qdrant

Germany. Database for retrieving relevant content.

n8n

Germany. Workflow automation across applications.

Langfuse

Germany. Observation of requests, responses, latency and costs.

deepset

Germany. Tools for building applications that use enterprise data.

Dataiku

France. Platform for developing and governing AI projects in large organisations.

The companies listed operate in different functions: data search, automation, monitoring and application management.

Find

Retrieving the right documents and data inside archives no model knows in advance.

Connect

Connecting the software already in use, respecting existing permissions and roles.

Govern

Measuring costs, latency and errors. Authorising, testing and keeping a record of actions.

Official logos from the respective company media kits. deepset is based in Berlin: the open-source framework is Haystack, the enterprise platform is Haystack Enterprise Platform, a name introduced at the end of 2025. ● FACT

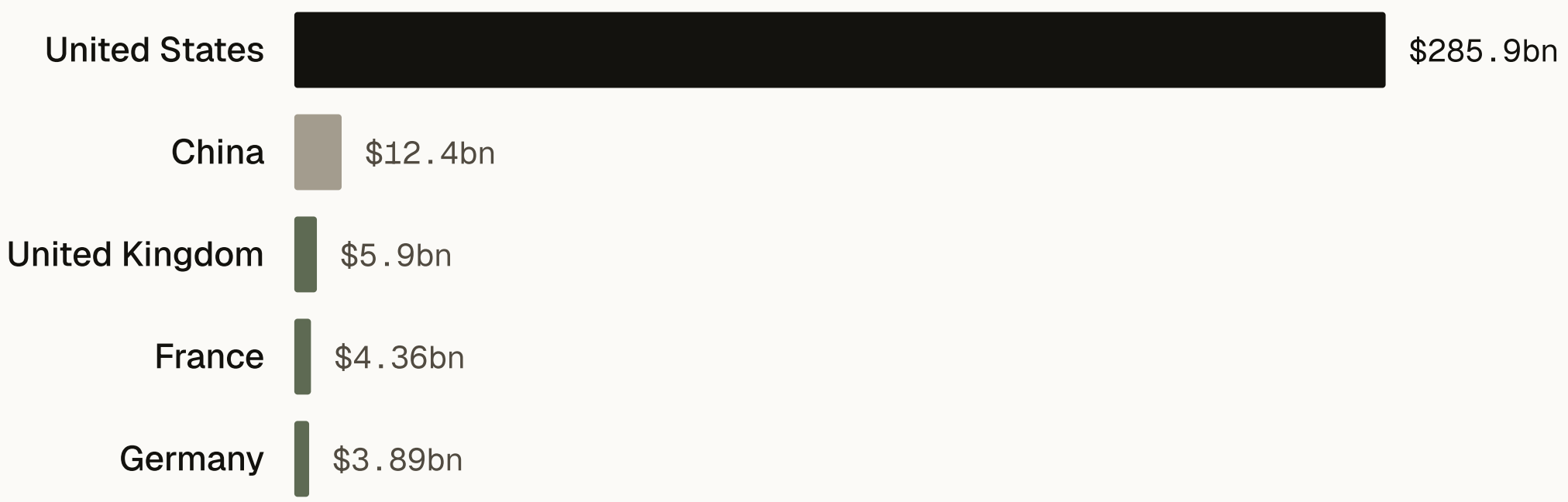
19 · SCALE-UP FINANCE

The hardest step: from startup to *global company.*

A growth-stage company, or *scaleup*, already has a product and customers and needs to become international. This is the step that requires larger funding rounds, and the step at which Europe loses companies to other markets.

What requires capital at this stage

ITEM	WHY IT REQUIRES LARGER ROUNDS
Commercial expansion	Opening new markets means hiring sales and support staff before the revenue arrives.
Compute capacity	Training and serving proprietary models requires multi-year commitments with cloud providers.
Plant	In industrial AI you need lines, machines and testing, not just software.
Skilled hiring	Senior researchers and engineers compete in a global salary market.
Acquisitions	Buying skills or market share is often faster than building them.



Private AI investment, 2025, in US dollars. The United States bar is 48 times China's and 73 times Germany's. ● COMPANY-REPORTED

20 · EUROPEAN CAPITAL

TechEU and ETCI 2.0: two different instruments to accelerate AI development *in Europe.*

GENERAL PROGRAMME

TechEU · European Investment Bank Group

Combines loans, guarantees, equity and advisory across the whole development cycle.

↓

DEDICATED INSTRUMENT

ETCI 2.0 · fund of funds

It does not invest directly in companies: it invests in European growth funds, which in turn finance the scaleup.

↓

FINAL DESTINATION

European growth funds

They select the companies and allocate capital according to their own investment theses.

↓

EXPECTED EFFECT

Larger rounds available in Europe

The aim is to reduce the number of companies that have to seek growth capital outside the continent.

TECHEU	**EIB Group finance** loans, guarantees, equity and advisory across the development cycle	€70bn
TECHEU	**Capital to be mobilised** total target announced, not capital already reaching companies	€250bn
ETCI 2.0	**Fund-of-funds target** invests in European growth funds, which in turn finance the companies	€15bn
ETCI 2.0	**Capital to be mobilised** expected capacity, subject to the fundraising of the underlying funds	up to €80bn

European Investment Bank Group, programme documentation. ● FACT

III

Downstream: where value becomes economy.

Manufacturing, energy, automotive, pharmaceuticals, engineering, finance, aerospace, public services. This is the stretch of the chain where Europe has the strongest base, and where the game is still completely open.

Robotic assembly line, automotive industry

21 · INDUSTRIAL AI

When AI enters factories, vehicles and *grids.*

Physical AI refers to systems in which a model does not only produce text or images, but controls or guides an object in the physical world: a robot, a vehicle, a production machine, a plant. This is the ground on which Europe's industrial base counts for more than available capital.

What is actually measured

AREA	OBSERVABLE OUTCOME
Production	Scrap avoided, downtime reduced, setup time, first-pass yield.
Maintenance	Planned rather than corrective maintenance, unplanned downtime hours, component service life.
Design	Review cycles, reuse of already validated solutions, time from specification to quote.
Reti e infrastrutture	Load forecasting, dispatch, technical losses, restoration time after a fault.
Logistics	Vehicle fill rate, punctuality, handling per unit shipped.

Power grids: here AI does not generate content, it forecasts loads and coordinates physical flows.

The entries indicate measurement categories, not results achieved. ● INFERENCE

22 · EUROPEAN CHAMPIONS

European champions along the *value chain.*

LAYER	COMPANIES AND ORGANISATIONS	POSITION
Semiconductor equipment	ASML, ZEISS, imec	● STRONG
Specialised semiconductors	Infineon, STMicroelectronics, NXP, Bosch	● COMPETITIVE
Models	Mistral AI, Aleph Alpha, Black Forest Labs, DeepL, Stability AI	● UNDER CONSTRUCTION
Data and tools	Weaviate, Qdrant, n8n, Langfuse, deepset, Dataiku	● COMPETITIVE
Cloud	OVHcloud and national operators	● DEPENDENT
Industria e physical AI	Siemens, Schneider Electric, Helsing, automotive and aerospace groups	● STRONG
Enterprise application software	SAP and national vertical players	● COMPETITIVE

SIEMENS · Schneider Electric · SAP · BOSCH · Infineon · STMicroelectronics · NXP · AND OTHER INDUSTRIAL GROUPS

No layer is empty. The difference lies in the number of companies, their scale, and how much of the value produced stays in Europe.

The “position” column is a qualitative Lateral Space assessment of European capability in that layer, not a market share. ● INFERENCE

23 · COUNTRIES AND ECOSYSTEMS

There is no single European *AI*.

United Kingdom and France

TWO ECOSYSTEMS OF MODELS, TALENT AND GLOBAL COMPANIES

United Kingdom: Google DeepMind, Wayve, Synthesia and ElevenLabs show strength in research, autonomous driving, video and voice. Stanford estimates $5.9bn of private AI investment in 2025.

France: Mistral AI, Dataiku, LightOn, INRIA and strong public intervention concentrate models, software and compute infrastructure. Stanford estimates $4.36bn in 2025.

Ownership matters: DeepMind operates from London but belongs to Alphabet.

Germany and Benelux

INDUSTRY, SEMICONDUCTORS AND OPERATIONAL SOFTWARE

Germany: ZEISS, Infineon, Celonis, DeepL, Helsing and Black Forest Labs cover optics, industrial chips, process analytics, language, defence and images. WIPO identifies it as Europe's leading inventive hub in generative AI patent families.

Netherlands and Belgium: ASML, NXP and imec occupy decisive steps in the semiconductor chain. Weaviate shows a presence in the data layer too.

The industrial base offers direct access to factories, data and applied problems. It does not close the gap in chips and global-scale cloud.

Nordics and Switzerland

ADOPTION, RESEARCH AND SPECIALIST APPLICATIONS

Northern Europe: in 2025 the share of firms using AI was 42% in Denmark, 37.8% in Finland and 35% in Sweden. Lovable and Legora show Sweden's ability to build application software.

Switzerland: ETH and EPFL are among the most cited universities in European AI research, and ABB brings industrial automation into factory processes. AI talent density per capita is among the highest in the world. Outside the Union, participation in European research programmes remains a negotiated variable.

The small size of the domestic market makes international distribution essential.

Italy and Spain

A LARGE INDUSTRIAL BASE, ADOPTION STILL UNEVEN

Adoption: according to Eurostat, in 2025 at least one AI technology was used by 16.4% of Italian firms and 20.3% of Spanish ones. The EU average was 20%.

Opportunity: industry, energy, infrastructure, tourism, finance and public administration offer many data-intensive processes.

SME fragmentation and the skills gap slow investment in data, training and process redesign. Cloud shows a different base: in 2025, 75.6% of Italian firms purchased cloud services.

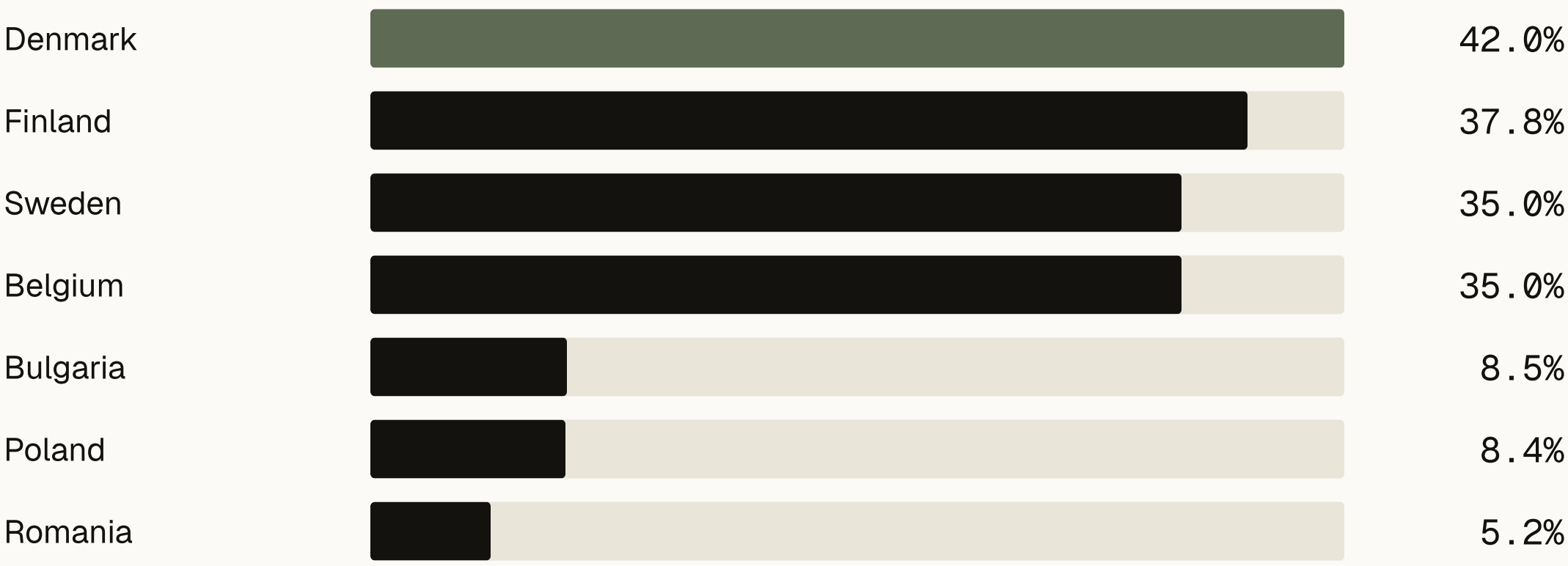
National sources and European Commission. ● INFERENCE

24 · ENTERPRISE ADOPTION

In two years AI use in European firms has more than *doubled*.

The figure measures use of at least one technology. It does not measure the depth of the transformation.

The European average hides gaps of more than eightfold



Large firms · 55%

In 2025 more than half of large European companies used AI.

PMI · 19%

The gap reflects budget, data quality, skills and the ability to redesign processes.

Cloud does not guarantee AI use, but it makes integrating data, software and compute simpler.

Eurostat, 2023, 2024 and 2025 surveys. The country figure measures use of at least one AI technology.

FACT

25 · PEOPLE

Young people have already normalised *using AI.*

Personal adoption creates expectations that organisations will have to manage.

Those entering European companies in the coming years already have AI among their everyday tools.

PEOPLE AGED 16-24

64%

Used generative AI tools in the three months preceding the survey.

EUROPEAN FIRMS, 10+ EMPLOYEES

20%

Uses at least one AI technology in a business process.

Three times more widespread among young people than in the companies they will go on to work for.

Eurostat, individual AI use, 2025 (S94); Eurostat, enterprises with at least 10 employees, 2025 (S02). The two measures cover different populations and are not a direct comparison. ● FACT

03

Rules must enter the processes.

The AI Act does not enter into force on a single day: it distinguishes prohibited practices, obligations for general-purpose models, transparency requirements, standalone high-risk systems and AI embedded in products. Each category has its own timetable.

26 · AI ACT

Obligations proportionate to *risk.*

The AI Act does not impose the same obligations on every organisation: responsibilities change according to the company's role and the risk of the application. For a company, governance starts with an inventory of the systems already in use.

Already applicable	**Prohibited practices and AI literacy**	Some uses are prohibited outright. In parallel there is a training obligation for those deploying AI systems in their work.
Already applicable	**General-purpose models**	Obligations on technical documentation, information along the value chain and respect for copyright for those placing a generalist model on the market.
Next phase	**Transparency and enforcement**	Disclosure obligations towards users and the build-up of supervisory capacity at national and European level.
Next phase	**Standalone high-risk systems**	Systems operating in sensitive areas such as employment, credit, education, essential services: they require risk management, documented data quality and human oversight.
Later phase	**AI embedded in regulated products**	When AI is part of a product already subject to sectoral regulation, such as a medical device or machinery, timelines are longer because two regulatory regimes are combined.

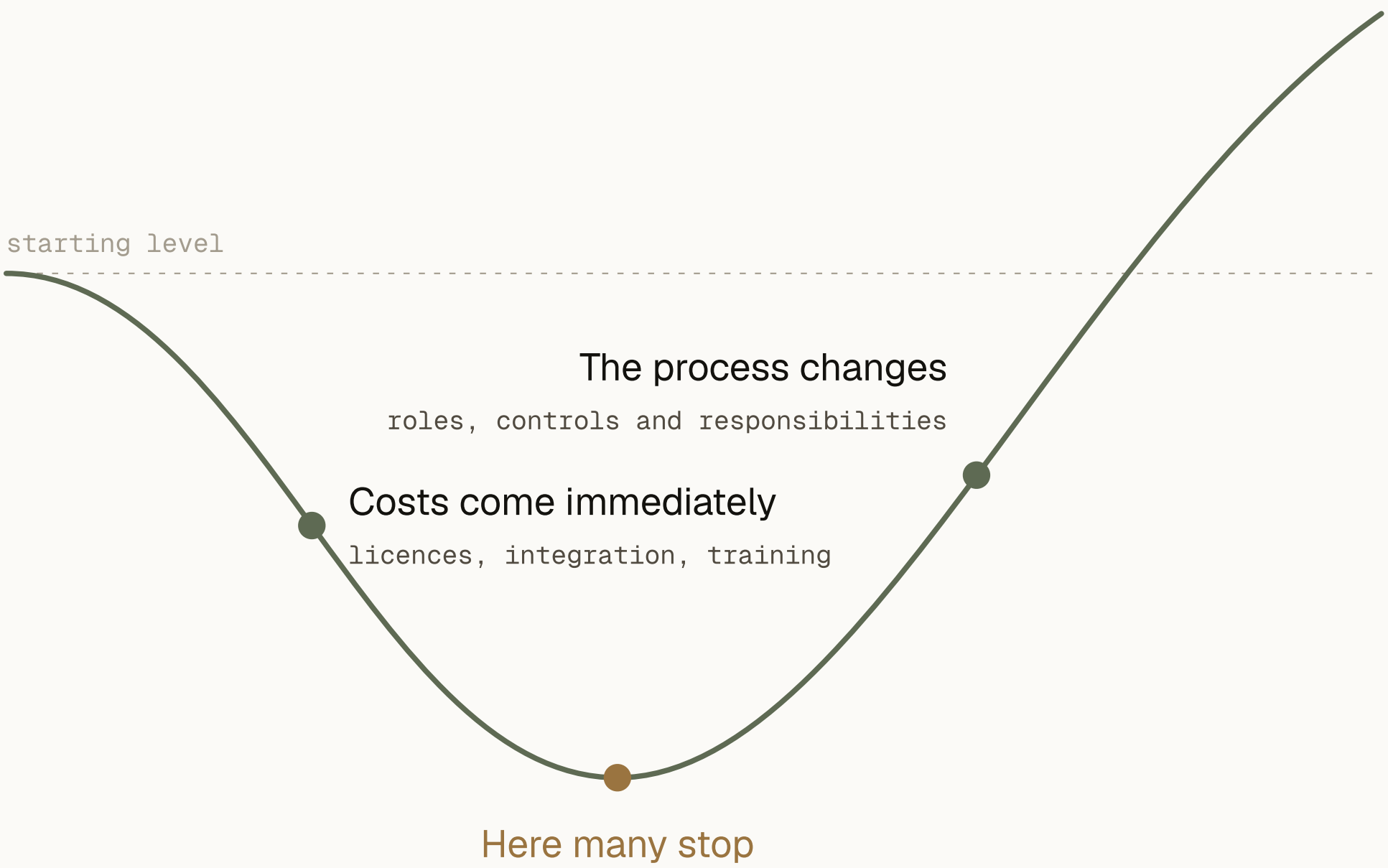
> The exact timetable should be checked against the official text and the implementing acts: the dates have been subject to adjustment and should not be quoted from memory.

European Artificial Intelligence Act and implementing acts. ● FACT

27 · PRODUCTIVITY

Productivity rises when the way of working *changes.*

The costs of an AI project arrive immediately. The benefit arrives only if the process is reorganised: this is why many initiatives stall halfway.



01 · INVESTMENT

Certain costs

Licences, integrations, training and the time of the best engineers. They leave the income statement immediately.

02 · THE LOW POINT

The real test

The old process coexists with the new. Those who do not reorganise the work stay here.

03 · REORGANISATION

The benefit arrives

Roles, timelines and responsibilities change. Only then does the outcome exceed the starting level.

The shape of the curve is a qualitative representation, not a time series: depth and duration vary by company and by process. ● INFERENCE

E ORA?

Reimagining the continent while the window is open.

Between invention and economic value there is a window, and it does not stay open forever. Some choices require years of European coordination; others can begin now, inside companies.

28 · HISTORICAL PRECEDENTS

Invention is only the *beginning.*

Three precedents in which decisive European contributions produced economic value largely elsewhere. This is not a verdict: it is the description of a mechanism that can be interrupted.

TECHNOLOGY	INITIAL CONTRIBUTION	INDUSTRIAL SCALE	WHERE VALUE CONCENTRATED
Electricity	Research and first systems in Europe, across Italy, the United Kingdom and Germany	Grids and equipment at continental scale in Europe and the United States	Distributed, with strong European industrial champions still today
The automobile	Invention and first industrialisation in Germany and France	Mass production in the United States, then in Japan	Split: Europe retains premium brands and components
World Wide Web	Conceived at CERN, in Europe, and released publicly for free	Platforms and digital advertising in the United States	Almost entirely outside Europe

The difference between the three cases does not lie in the quality of European research. It lies in where industrial scale was built and who financed the growth of the companies.

Electricity

Developments spread across several countries. The first integrated commercial system opened in **New York in 1882**.

Automobile

Invented in **Germany in 1886**. Mass production arrived in the **United States from 1913**.

Internet and the Web

Packet switching between the United States and the United Kingdom. The Web was born at **CERN in 1989**.

● FACT for the attribution of initial contributions; ● INFERENCE for the reading of where value concentrated.

29 · IN SUMMARY

Three things true at the *same time.*

01 Europe holds capabilities no one can replace quickly

The machines that print the most advanced chips, the precision optics that make them possible, the processes trialled years before production. It is a real position, concentrated in very few organisations.

02 In the middle of the chain the dependencies are serious

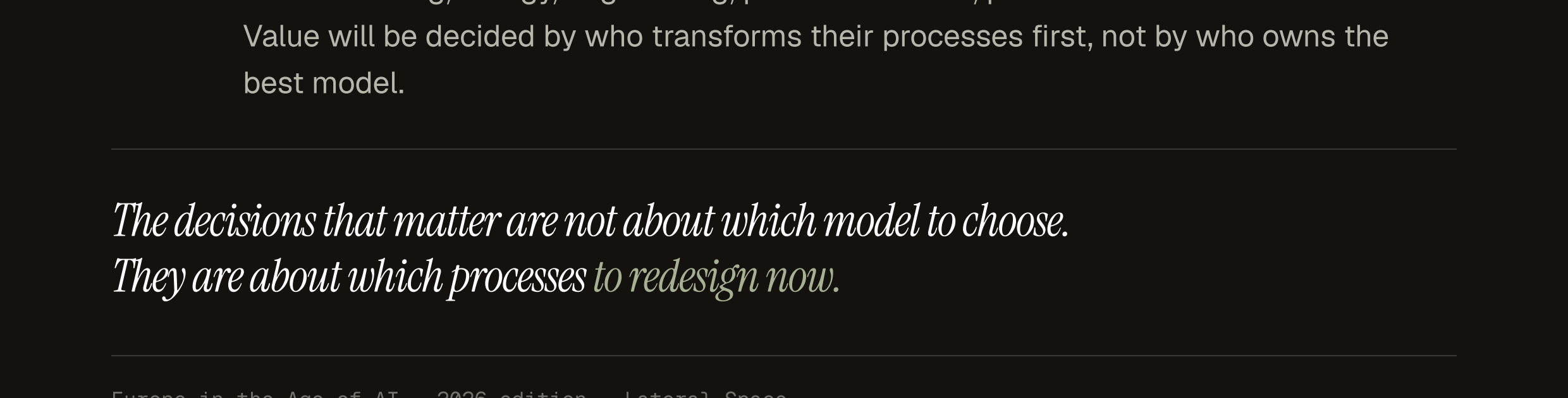
Specialised chips, high-bandwidth memory, advanced manufacturing, global-scale cloud, frontier models, growth capital. These are not marginal gaps: they are the steps where prices and terms are set.

03 The applied and industrial game is still open

Manufacturing, energy, engineering, pharmaceuticals, public services: the base is there. Value will be decided by who transforms their processes first, not by who owns the best model.

The decisions that matter are not about which model to choose.
They are about which processes to redesign now.

Europe in the Age of AI · 2026 edition · Lateral Space



Decisions about the AI value chain are being taken now, in European companies and institutions.

GLOSSARY

Glossary of terms used in this *report.*

Fourteen technical terms recur in the report. Each is defined here and used consistently throughout.

Accelerator
Microchip specialised in running in parallel the calculations required by AI models.

AI Factory
European hub combining supercomputers, data, skills and services for research and industry.

Global-scale cloud
Cloud infrastructure distributed at global scale by a few large operators.

Pure-play foundry
Company that manufactures chips designed by other firms.

Inference
Use of a model that has already been trained to produce an answer or perform a task.

Open weights
Model whose weights are distributed under a defined licence.

Wafer
Silicon disc on which the circuits are built.

Advanced packaging
Techniques that connect chip, memory and interconnects into a single module.

API
Interface that allows different software to communicate.

EUV
Extreme ultraviolet lithography, used for many advanced chips.

HBM
High-bandwidth memory placed close to the accelerators.

LMArena
Benchmark in which people compare anonymous answers from two models.

Token
Unit into which a model splits text in order to process it.

Gigafactory
Large European infrastructure designed to host tens of thousands of advanced AI processors.

SOURCES

Sources used in this *report.*

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