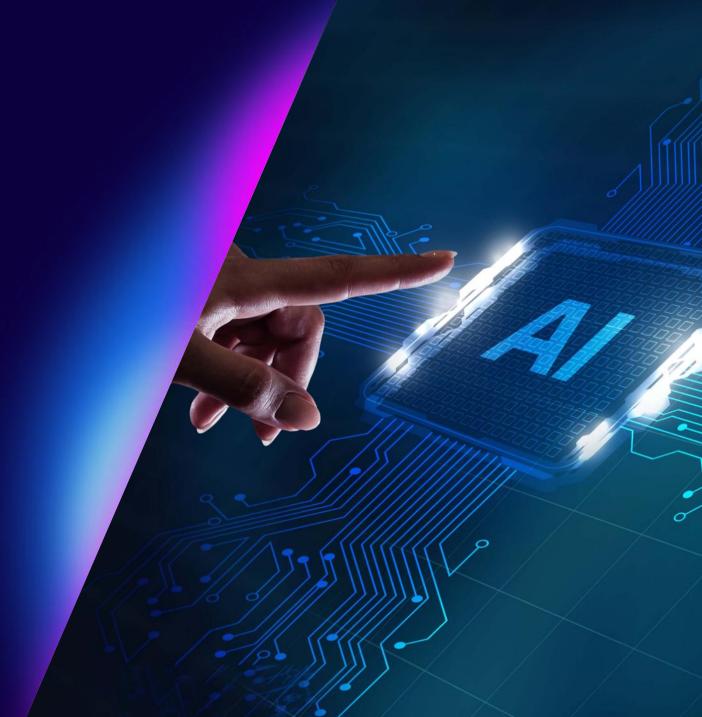
AI ECONOMY AND INFRA PLAY

Keynote Speech, Karim Taga

NOVEMBER 5, 2025 ESZTERGOM



ARTHUR LITTLE





07

Transition from the Digital to the AI Economy

Al is the new national infrastructure: compute and sovereignty choices now decide where value accrues across the stack

AI ECONOMY AND INFRA PLAY



Opportunity for the ICT Sector – Why own AI?

Own, don't just consume: SLM-first, data-controlled stacks beat generic LLM/APIs with lower TCO at scale and less exposure to lock-in

03

Opportunity for the ICT Sector – How to build your AI Factory?

Win with an Al Factory: align purpose, model, capability and infrastructure, pick the right route (hyperscaler, neo-cloud, sovereign/ on-prem) and industrialize





TRANSITION FROM THE DIGITAL TO THE AI ECONOMY - GLOBAL AND HUNGARIAN PERSPECTIVES

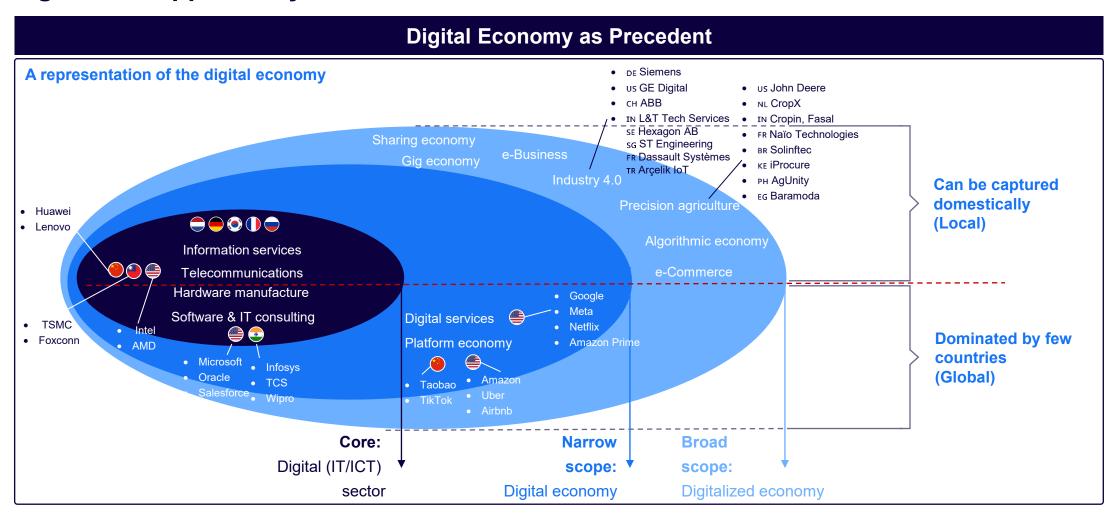


1 Transition from the Digital to the Al Economy – Global And Hungarian Po

1.1	Al Economy	4
1.2	Strategic Options for Hungary	16



In Digital Economy, although few countries dominate in certain core areas, there is significant opportunity to add value in the rest of the value chain





Full digital potential is being realized only when digital infrastructure is leveraged by the industry, consumer and society at large

Digital Consumer

- Cost savings
- Time savings
- Demand stimulation

00 Retail **Finance** ÍİÌ Travel 3 Digital Society Government Societal well-being Energy sensors & Devices **G** Data Processi Sustainability Agriculture **Education** dvanced Connectivity Basic Manufacturing Healthcare Connectivity **Digital Infrastructure**

enhancement

improvement

Governance

enhancement

efficiency

Digital Industry

improvements

New business

Employment

improvement

structure

models

Productivity



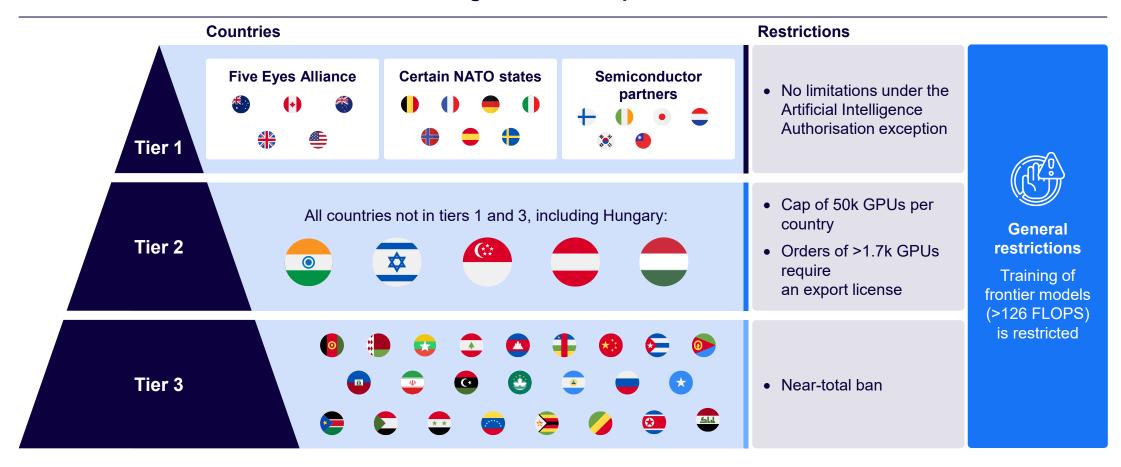
Similar situation is starting to emerge also in AI economy – but there is significant opportunity for local/ domestic value addition across specific AI layers

Al Economy Mirrors the Digital One — But the Window for Local Value Is Now A representation of the AI economy Al-enabled Vertical Apps FinTech Cogito Tech Craft.Al Can be Infrastructure is a Manufacturing captured "winner-takes-most" **Smart Cities** SK Telecom AgriTech domestically laver — only few Yandex.Cloud **OVHcloud** (Local) countries dominate APIs. middleware Data labeling & curation RAG stacks (LangChain, vector Model layer is the digital Finetuning & domain-specific • Data embeddings & vector control point — critical Compute Infrastructure Synthetic data generation but increasingly exposed Training platforms · Orchestration tools to open models • Chipsets (GPU/TPU) Foundation LLMs Integration is a lever point for differentiation, combining global models with local systems Deepseek **Dominated** TSMC by few Applications are the OpenAl NVIDIA countries AMD Google broadest surface for Intel (Global) domestic value creation, IBM especially for sectors with national relevance Broadcom (gov, energy, healthcare) Infrastructure Model Integration



The US' Al Diffusion Framework places restrictions on the export of high-end GPUs, while many countries are not part of the list

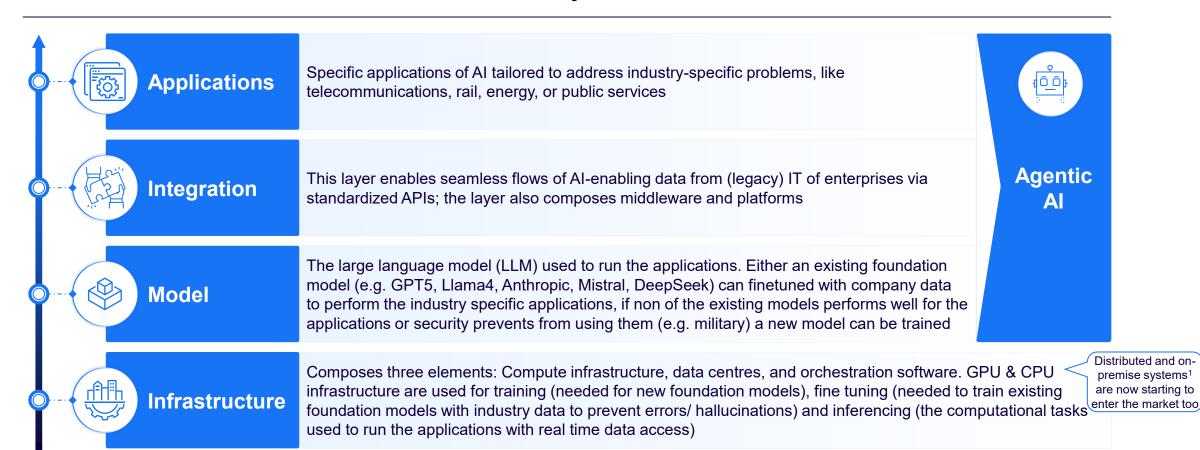
NVIDIA high-end **GPU** export controls





The Al ecosystem composes four mutually dependent layers: application, model, integration, and infrastructure – with agentic Al integrating multiple layers

The four layer model

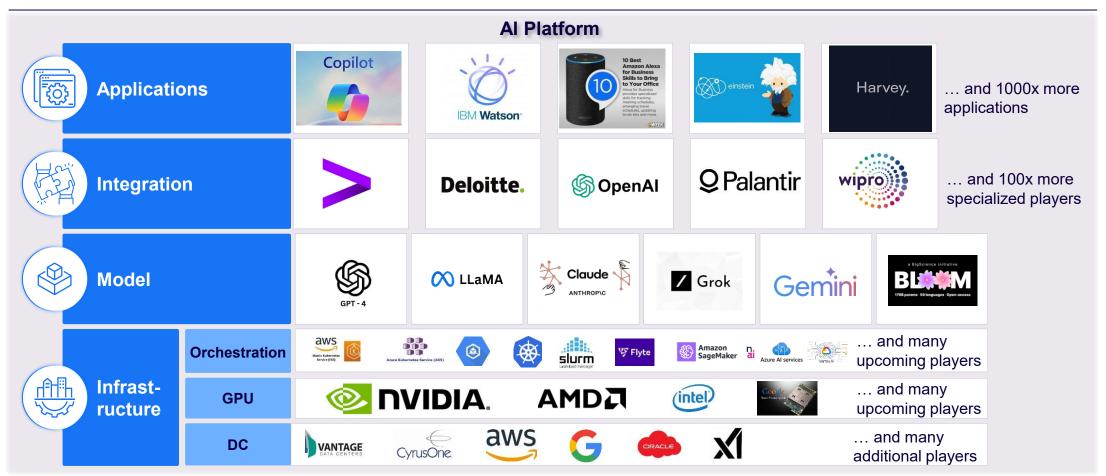


Notes: 1) NVIDIA launched the DGX spark in March 2025 with 1 Petaflop of computational capacity to enable prototyping, fine-tuning and inferencing on desktops, locally or via the cloud Source: Arthur D. Little



The US has already built a very powerful ecosystem present globally ...

US-Players dominating the global across the AI ecosystem

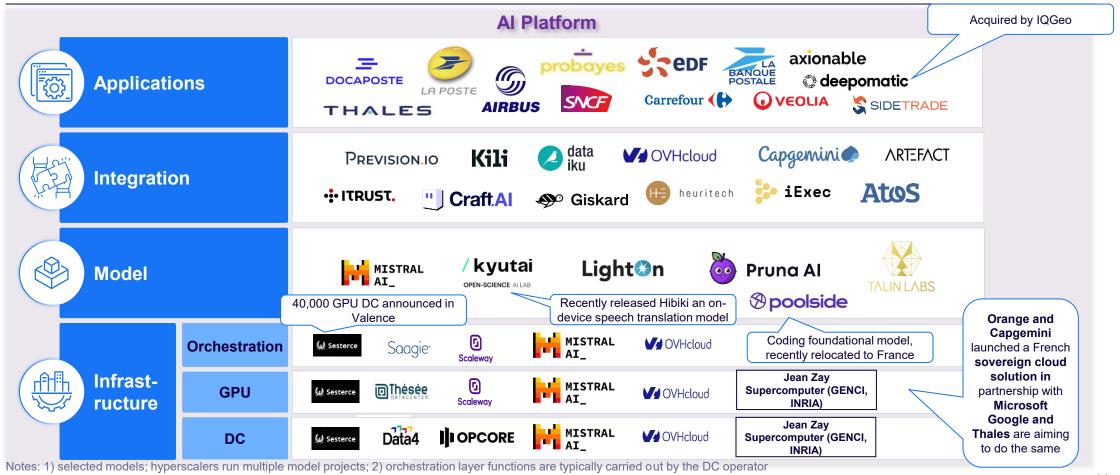




Local play is possible across layers as evidenced by example of France ...

Players across the Al ecosystem

Example of France



Source: Arthur D. Little based on publicly available information



... and Germany

Players across the AI ecosystem

Example of Germany

Al Platform								
Applications		Siemens Industrial Co-Pilot and AgenticAl teams in production, energy, utilities	SAP Horizontal integration of business processes supported by SAP Joule	Mercedes Al-driven "digital factory" and Lvl 3 autonomous driving	Bosch AgenticAl along the whole production value chain; Al in autonomous driving			
Integration		Siemens / Bosch Industrial stack for integration on machine level, also using AgenticAl	SAP Business Al Combined ERP and GenAl workflows	StackIT Operate in the public sector with strict sovereignty	Aleph Alpha PhariaAl as full-stack GenAl suite			
Model		OpenGPT-X Publicly funded LLM built for European languages	Nyonic LLMs for industry applications with full stack approach	DeepL Translation-focused LLM trained on curated data	Aleph Alpha Pharia-LLM as EU- compliant model w/ disclosed data set			
	Orchestration	V OVHcloud T	IONOS HETZNER					
Infrast-ructure	GPU	V ○VHcloud	IONOS HETZNER					
	DC	maincubes SECURE DATACENTERS	HETZNER 10NOS					



1 Transition from the Digital to the Al Economy – Global And Hungarian Po

1.2	Strategic Options for Hungary	1
1.1	Al Economy	



The transition from digital to AI economy offers Hungary a unique opportunity - success depends on gov. action across 6 policy levers



Massive Public Investment in R&D & Infrastructure

• Building national compute (Al factories, HPC, cloud, data centers) and shared datasets lowers barriers for private Al innovation



Digital Skills & Talent Pipelines

• Integrate AI into schools, universities, vocational training, and lifelong learning to build broad AI literacy and advanced expertise, including incentives to attract foreign talent





Startup Financing & Incentives for Al

 Catalyze AI entrepreneurship through venture co-investment, grants, and accelerators, reducing barriers for early-stage scaling



Open Data, Al-Savvy Government & Digital Identity

 Unlock innovation by creating trusted national datasets, digital ID, and e-government services that also serve as testbeds for AI



Balanced Regulation for Innovation & Trust

• Implement the EU AI Act with a business-friendly, risk-based approach, including regulatory sandboxes and an AI Supervisory Authority



Global Engagement & Al Trade Policy

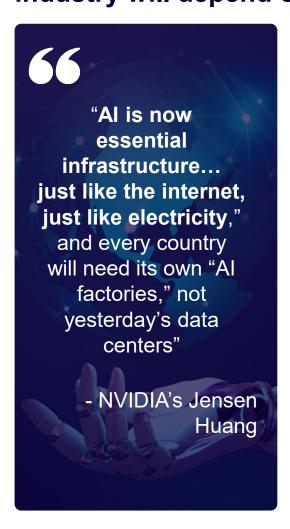
• Position Hungary as a hub for AI, leveraging EU partnerships and cross-border agreements on AI standards and data flows

Source: Arthur D. Little 14



All is becoming essential infrastructure, every country should build it, and every industry will depend on it





What different countries are doing



France



- Partnerships with Mistral and NVIDIA (Al Campus) to strengthen technological sovereignty
- Scaling Al training programs (to 100k people/year)
- €400m for AI hubs, skills programs, research center
- France subsidizes Al roll-out of other countries (e.g. Serbia) if they utilize the French Al acosystem.
 E.g. Serbia Deal (April 2025):
 - €50m agreement with Eviden (Atos subsidiary): €36m for BullSequana XH3000 supercomputer (25 PFLOPS)
 - €14m for applied AI projects
 - · Use of Mistral model
 - · Including a national Al factory



Singapore

- Al Singapore (S\$500m+): national program funding Al R&D, talent development, and the "100 Experiments" scheme for SME adoption pilots
- Enterprise Compute Initiative (S\$150m, 2025): provides Al cloud credits (up to S\$555k per firm) and consultancy to help enterprises build Al MVPs
- National Supercomputing Centre (NSCC): S\$270m expansion, upgrading HPC systems to support research and industry
- NAIS 2.0 (2023): long-term strategy with 10 enablers (compute, data, skills, global collaboration
- Goal: position Singapore as a trusted Al hub with strong ethics frameworks, international Al safety leadership, and global connectivity



United Kingdom

- £2 billion through 2030 to transform public compute infrastructure, including scaling the Al Research Resource (AIRR), funded with £300m already for Isambard-AI, and a planned £750m supercomputer
- AIRR comprises Isambard-AI (Bristol) with 5,448 NVIDIA GH200 chips and Dawn (Cambridge) GPU cluster;
- National Supercomputing Centres, to curate data, build software assets, deliver training pipelines, and anchor Al Growth Zones (AIGZs)
- Allocation model targeting highestpriority national missions, e.g. reserves compute for the Sovereign Al Unit and Al Security Institute



Hungary can build its Al future through adequate funding, compute, Al factories, building own Al champions, regulation and talent

3

Scale funding and

Establish Al factory

Build champions

Enable talent & skills

Supportive regulations



5

- \$
- Assure sufficient funding for Al infrastructure (e.g. own Gigafactory)

secure compute

- Blend public equity/debt with EU mechanisms (EuroHPC, InvestAI, RRF) to reduce risk
- Secure compute through own capacity or partnerships



- Build a sound understanding of public demand in order to secure sufficient capacity and to provide demand guarantees supporting AI Gigafactories
- Build public Al factory to assure pooling of resources and talent.
 Assure secure and aligned procurement of infra and services
- Support domestic players and consortia to build "national champions" in Al leveraging international relations
- Foster scale-ups through targeted funding, preferential access to compute, and public-private partnerships (e.g. coinvestment in R&D, export promotion etc.)
- Invest in AI education, training, and reskilling programs at universities, research centers, and vocational schools
- Attract and retain
 Hungarian and foreign
 Al talent to staff Al
 factories and
 innovation hubs,
 reversing brain drain
- Create stable, transparent governance structures aligned with EuroHPC bid criteria (sustainability, oversight, EU-added value)
- Reduce investor risk with predictable rules and ensure public interest access

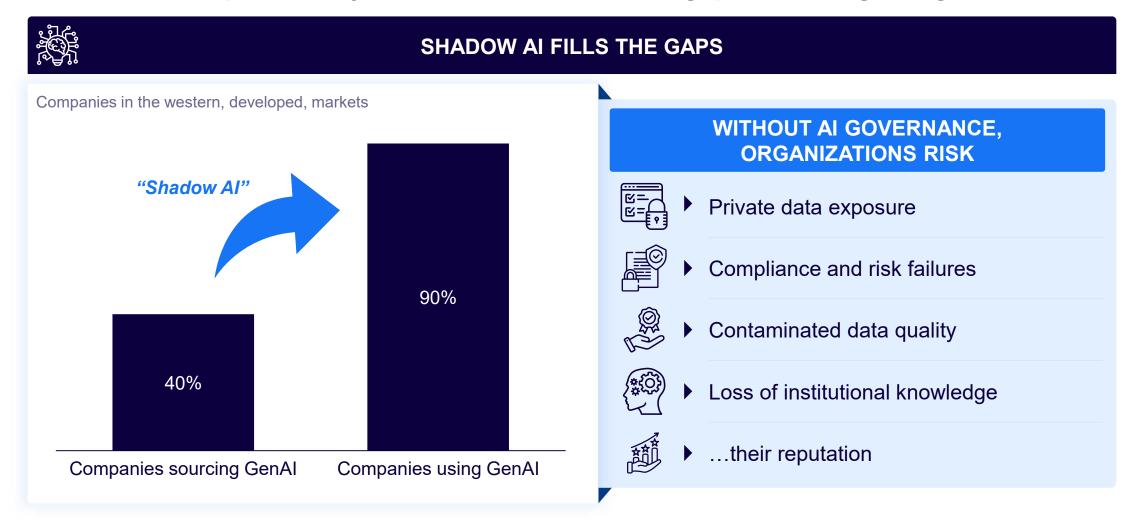
Source: Arthur D. Little 16



THE OPPORTUNITY FOR THE ICT SECTOR – WHY OWN AI?



Al will "infiltrate" all parts of your organization. Unless steered proactively, "Shadow Al" will fill the gaps, resulting in significant risk.



Source: MIT, Arthur D. Little 18



Across every industry, players small and big are deploying their "own Al"

Energy





- ExxonMobil: Trains HPC-based Al models for drilling analytics and predictions
- EDF: Builds in-house AI applies digitaltwin simulations for grid engineering
- Enel: Trains AI forecasting models for wind and solar energy







• Markant (Retail.ai): Builds generative Al

pipelines for FMCG content and data

• Temple & Webster: Develops in-house Al

• Ocado Group: Buids in-house Al &

for product content, customer service, and

robotics for online grocery to automate on-

grid robotic picking and optimize fulfillment



Financial services



- Finanz Informatik: Develops on-premise Al infrastructure for banking automation
- Capital One: Builds proprietary multi-agent Al by fine-tuning foundation models on internal data
- Bank of America: Operates one of the world's largest private clouds and builds inhouse Al

Bank of America.





Automotive



Telecom



- Bosch: Invests in AI for autonomous driving and industrial automation
- ACPS Automotive: Builds Al for manufacturing quality control with on-prem **GPUs**
- Tula: Develops AI models for engine efficiency on proprietary AI clusters







- C Spire: Operates AI clusters for customer analytics and chatbot training
- GTT: Builds AI models for network anomaly detection on sensitive data
- Deutsche Telekom, Vodafone and Orange: Use the AI Factory to build AI products and services for business and consumer customers
- Singtel: Runs an Al Factory to provide infrastructure, tools, and models "as a service" for other telcos and MNCs











Retail

solutions

logistics

centers

WEBSTER



Pharma





- BioNTech: Develops proprietary Al lab assistants following InstaDeep acquisition
- Corcept Therapeutics: Trains Al models for clinical trial optimization with patient data
- Catalyst Pharmaceuticals: Builds AI for drug discovery using sensitive patient data







Industrial





- Fraunhofer Institute: Develops AI to enhance grid security, efficiency, and sustainability
- Continental: Operates Al Lab Berlin developing autonomous mobile robotics models





Public



- Nextcloud & Schleswig-Holstein: Building an open-source sovereign Al platform for government
- BharatGen (IndiaAl Mission): Government-led development of India's open-source multilingual LLM
- Bürokratt (Estonia): National virtualassistant platform to access government eservices across agencies











"Own Al" - custom applications / fine-tuned models / dedicated infra

Source: Executive interviews. Arthur D. Little



Our experience shows that enterprises derive benefits from AI in 4 categories

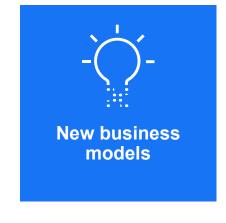
Revenue from B2C services

 Al embedded / augmenting B2C services and devices (consumer electronics, gardening, glasses, cars, toys, etc.)

Revenue f. B2B services (beyond AI services):

- Intelligence: prediction, assessment, etc.
- · Agents: care, documents, etc.
- **Performance** improvement, energy efficiency, machine learning, etc.
- Backoffice automation and optimization across domains (FIN, HR, customer service, network mgt, etc.)
- IT / Cyber: integrate AI into tool landscape to increase people productivity / effectivity)





- Al infrastructure (access and monetization)
- Al-aaS (faster Rol, scaling ...)
- Data related services (add rev.)
- Model training (add rev.)
- Establishing a new channel, catering to agents / assistants



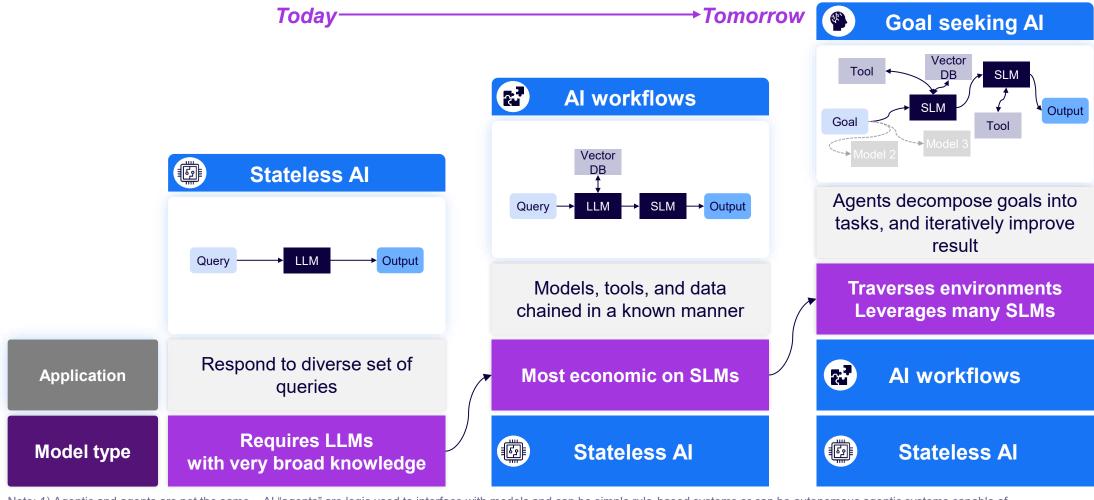


- Channel: targeting, X/U selling, etc.
- **Communication:** tailored messaging, social media positioning, etc.
- Portfolio optimization: pricing, next best action design, demand estimations, etc.
- Micro-segmentation: identify and target microsegments with their specific demands

Source: Arthur D. Little 20



With agentic AI, the landscape of models and tools needed will grow exponentially



Note: 1) Agentic and agents are not the same – Al "agents" are logic used to interface with models and can be simple rule-based systems or can be autonomous agentic systems capable of breaking down or even generating complex goals and adapting dynamically to their environment Source: Arthur D. Little

21



...leading to an increasing demand for custom Al solutions. Small, not large models will be the foundation of enterprise Al, due to their "unfair" cost advantage.



Companies and governments begin to build their own models...

"We are definitely going in the direction of proprietary LLMs...and every business unit will have their own vertical SLMs and Al agents...Right now we are 60% in the cloud, but that will go down as we secure H100s and scale colocation and data center strategy"

CTO, Tier 1 Bank

"Building our own models and post-training open-source models led to much better results than working with providers to preconfigure general models"

Sr. Director Enterprise AI, CVS Health

Source: Nvidia, Arthur D. Little



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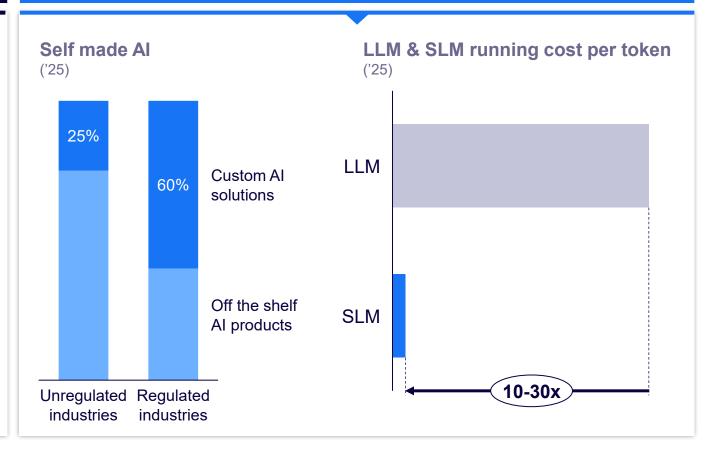
...signifying that self-built AI will begin to grow substantially

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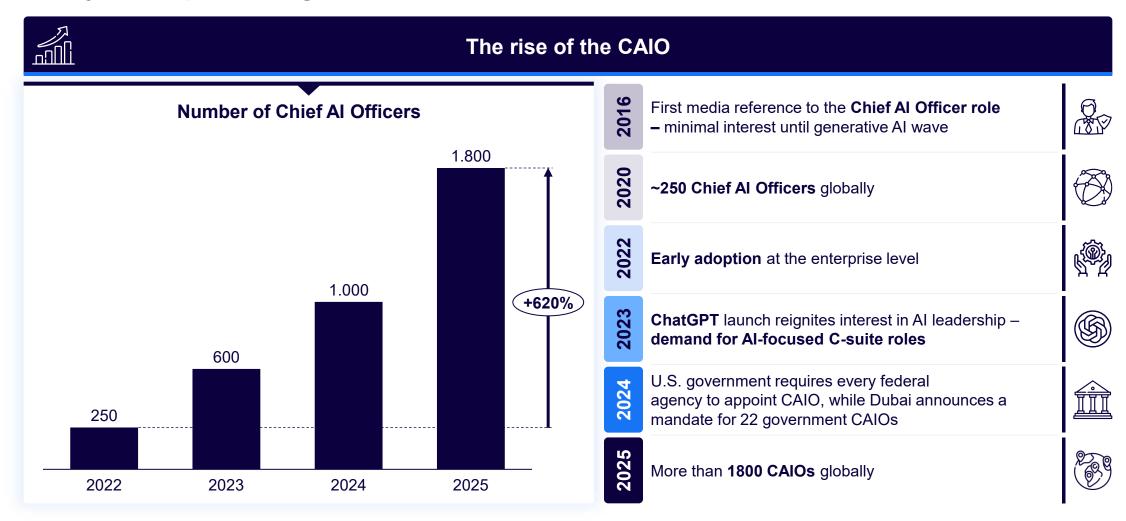
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Source: Nvidia, Arthur D. Little



C-level seats for Chief Al Officers are one marker of enterprises recognizing the need to adjust corporate organization for Al







Enterprises have a choice: Either produce AI or consume AI.



Self-built Al is a new asset class. It is not an expense.



Companies that build AI, create assets. Others do not.



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