aws startups

Strand Partners




BROUGHT TO YOU BY AWS STARTUPS | NOVEMBER 2026

# Built in Europe: The rise of Physical AI

The technology is ready. Now, Europe's industry must put it to work.

## Introduction

For most of the past three years, the public story of artificial intelligence has been about software: models that write, summarise and generate images on a screen. The next stage is physical. Physical AI, meaning artificial intelligence that senses, reasons, acts and learns in the real world, now runs robots on factory floors, drones that inspect infrastructure, autonomous vehicles, and the models and simulation tools that sit behind them.

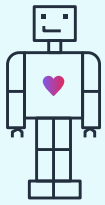
Europe has a strong claim on this stage of AI. It has some of the world's leading robotics research institutions, a dense industrial base with a pressing need to automate, and a fast-growing population of companies building for it. European robotics startups raised a record €1.45bn in 2025, more than double the previous year.

This report sets out to establish, with original evidence, where Europe stands. It draws on a survey of 500 founders and senior leaders of physical AI startups across seven European markets, alongside interviews with enterprise deployers, investors and Amazon and AWS experts. It looks at what these companies have built, who is buying from them, and what stands between a working pilot and deployment at scale.

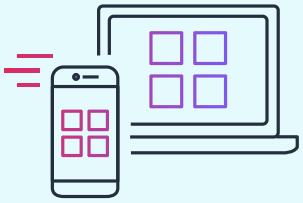
The cohort that emerges is further along than its reputation suggests. Half already have their technology commercially deployed, most sell to large enterprises and industrial groups, and their founders rate Europe strongly on customers, talent and cost. Founders are equally clear about what slows them down. Capital is harder to raise, particularly at the scale-up stage, enterprise procurement is slow, and the engineers they most need are hard to hire. The chapters that follow take each of these in turn, and the report closes with four recommendations.

### Who we surveyed

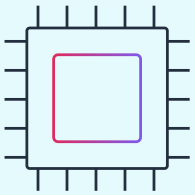
For this study, a physical AI startup is a company whose products or technology enable machines to sense, reason, act and learn in the real world. The definition spans three groups:



Companies building physical AI hardware, such as robots, drones, autonomous vehicles and other intelligent machines



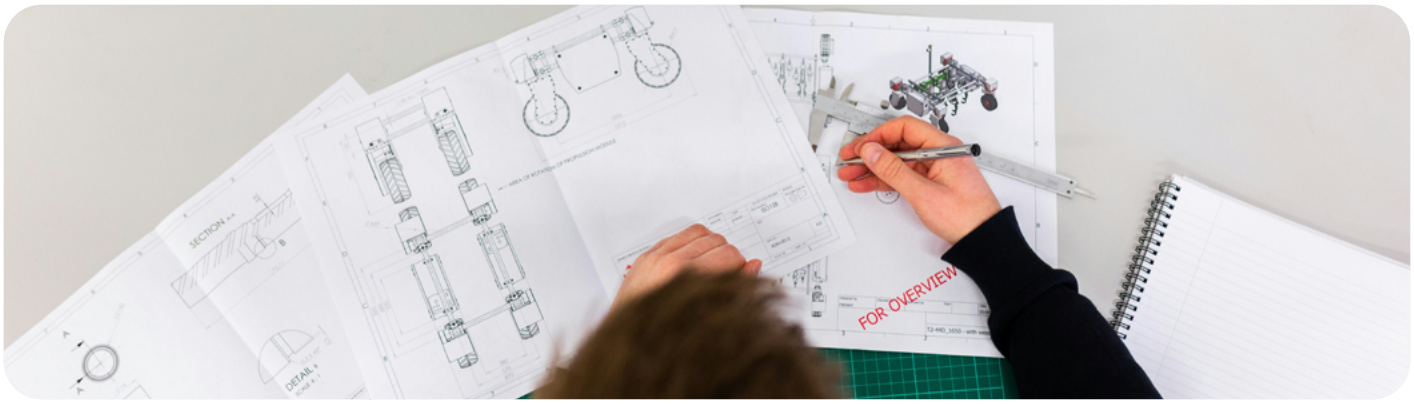
Companies developing the AI models and software that control or perceive physical systems



Companies providing the enabling technology behind them, including simulation platforms, synthetic data and chips

Companies that use physical AI built by others, without building it themselves, sit outside the sample.

DACH (Germany, Austria and Switzerland) accounts for the largest share of respondents (29%), followed by the UK (21%). London is the most common home city (15%), ahead of Munich (10%), Paris (9%) and Zurich (7%). Respondents are founders or business owners (58%), C-level executives (31%) and senior managers (11%). The sample skews young and fast-growing: 41% employ between 6 and 25 people, and 39% are between three and five years old.



## Key findings

**51%**

### Europe's physical AI startups are already selling.

More than half have technology commercially deployed, 14% at scale, and three-quarters are at least piloting with early customers. Only 12% have no paying customers yet.

**85%**

### Their first production customers are European.

85% say their first production deployments are, or will be, with European customers, and 61% have more pilot demand than they can currently serve.

**80%**

### Founders rate Europe highly on customers, talent and cost.

80% say so on access to industrial customers, 73% on technical talent and 72% on the cost of building and operating.

**71%**

### Capital is the clear exception.

71% say access to capital is worse in Europe than in the US, and 26% have seriously considered moving their headquarters out of Europe to raise money or scale.

**73%**

### Cloud and simulation infrastructure is the foundation startups build on.

73% train their physical AI wholly or partly in the cloud, and 56% say they could not have built their business without cloud computing. Only 7% name access to compute or infrastructure as an obstacle to full production, the lowest of any challenge tested.

**68%**

### The step from pilot to production is where startups stall.

68% agree most European physical AI startups get stuck at pilot stage. Long enterprise procurement cycles are the obstacle founders name most often (64%).

**77%**

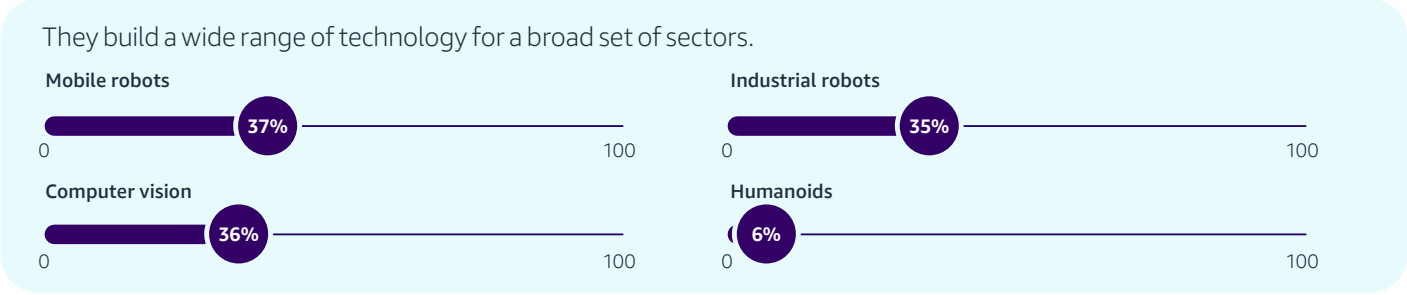
### Founders would build here again.

77% would choose to headquarter in Europe if founding their business today, against 14% who would choose the US.

## 1. Europe's physical AI cohort is already selling

### A cohort built on research and selling to industry

Most of Europe's physical AI startups are past the prototype stage. More than half (51%) already have their technology commercially deployed, including 14% at scale. Three-quarters (75%) are at least piloting with early customers, and only 12% have no paying customers yet. Revenue is still modest for many, however: 49% reported revenue below $500,000 in their last fiscal year, while 11% reported between $500,000 and $999,999, and 30% reported $1 million or more.




Manufacturing and automotive is the most common sector served (47%), followed by logistics, warehousing and supply chain (38%), with healthcare, medtech and life sciences (17%) and energy, utilities and grid infrastructure (16%) also well represented. World models are already part of the picture, with 27% building their own and 41% building or using them.

Most of these companies are young. The largest group (39%) is between three and five years old, and 41% employ between 6 and 25 people. Founders expect to grow quickly from here, with headcount forecast to rise by a mean of 68% (a median of 40%) over the next two years.

Three-quarters (76%) of these startups sell to large enterprises or industrial groups, ahead of consumers or other startups. Almost half (46%) are university spinouts or were founded by researchers and recent graduates, drawing on institutions such as ETH Zurich, TU Munich and Cambridge.



*"Demonstrating a physical AI system in a controlled environment requires novel science and engineering, but extending that work to scaled commercial problems requires a distinct set of capabilities. Production systems interface with equipment and software they don't control, which vary building to building and often were not designed around the robot. The task itself also changes over time, so a system validated against one snapshot of the operation has to continuously adapt as that operation evolves. Data is the flywheel for most physical AI systems, and the performance of that flywheel often gates how quickly a fleet can scale. Most early-stage work concentrates on the happy path, but in production the handling of exceptions often defines the value and success of the system more than nominal performance. At scale, reliability and predictability become the dominant KPI, often ahead of raw performance, because operators need to be able to plan."* **– Clay Flannigan, Director, Amazon Robotics**



*"At RIVR, we've built autonomous legged robots powered by Physical AI. They are intelligent machines that don't just process the world on a screen, but physically move through it, learn from it, and adapt to it in real time. Our robots are designed for doorstep delivery, covering the stretch from the delivery van to the customer's front door, including the stairs, curbs and narrow walkways that have stopped other autonomous delivery systems in the past. Our wheeled-legged form factor gives us the speed of wheels with the terrain capability of legs."* **– Marko Bjelonic, CEO, RIVR, an Amazon company**

Europe's physical AI startups pair strong research foundations with early commercial traction. Many already work with large industrial customers, which puts them close to the buyers whose adoption will decide how quickly the market grows. Turning that early traction into deployment at scale is the central challenge for the sector, and the focus of the chapters that follow.

## Demand comes from European customers, and it is growing

Because these startups sell mainly to enterprises and industrial groups, their customers sit close to home. Almost three-quarters (73%) have the majority of their customers in Europe, and 85% agree that their first production deployments are, or will be, with European customers.

That demand is rising. Two-thirds (67%) say enterprise interest in their technology has increased over the past 12 months, and 61% say they have more pilot demand than they can currently serve. Asked why customers adopt their technology, founders most often point to labour and skills shortages that customers cannot otherwise fill (32%), to increasing speed, quality, or output (22%), and to reducing labour costs (17%).

Filling gaps in the workforce comes up almost twice as often as cutting the cost of it, which suggests that customers most often turn to physical AI to keep production running where skilled labour is scarce. Founders also expect the effect to be large: four in five (80%) expect physical AI to reshape or transform major parts of the sectors they serve within five years.



***"Europe has one of the densest industrial bases in the world, and 80% of founders rate Europe at or ahead of the US on access to industrial and manufacturing customers. Being close to those customers makes a real difference: 78% say it helps them get to production faster, and founders are far more likely to find it easier to run a real-world pilot in Europe than in the US (58% against 12%). Europe's talent matters just as much. Almost three quarters of founders (73%) rate Europe at or ahead of the US on access to technical talent. Nearly half of Europe's physical AI startups are university spinouts or were founded by researchers and recent graduates, supported by some of the world's leading universities. Put those together and you have something few regions can match. World-class research produces the founders, and Europe's industrial leaders become their first customers. It's why 77% of founders would choose to headquarter in Europe if they were starting their business today, and why we're so committed to helping them grow here." – Tanuja Randery, MD & VP, AWS EMEA***



***"The reason physical AI is moving from the lab into production is that several threads have come together at once: better AI models, dramatically more simulation capacity, increasingly capable hardware, and the compute to connect them. You can now train and test robots across enormous numbers of simulated environments and edge cases before they ever encounter them in the physical world, then use what happens in the real world to improve the next generation of models. The cloud's role is to make that a continuous development loop, connecting data, simulation, training, evaluation, deployment, and feedback from the edge. My advice to a founder in Europe with a working prototype is that the leap to production isn't just about a cleverer algorithm. It's about building that loop underneath it. Build just ahead of what's possible today, invest where the constraints are moving, and don't try to build the whole stack yourself." – Matt Wood, Chief AI and Technology Officer, AWS***

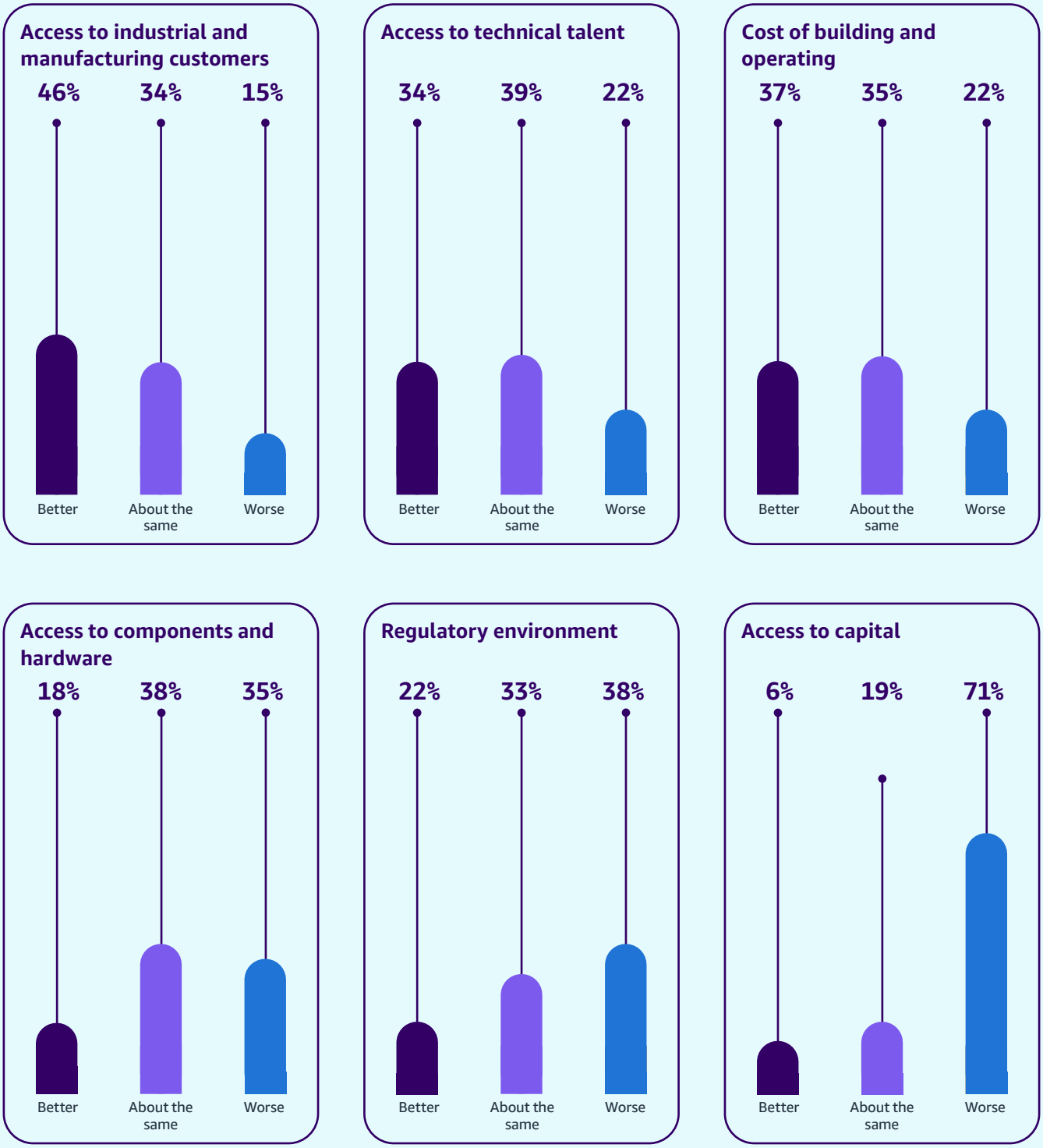
Europe's physical AI startups have a strong customer base close to home and, in many cases, more pilot demand than they can currently meet. With interest at this level, the harder task is converting it into production contracts, which later chapters examine in detail.

## Where Europe stands globally

Founders were asked where Europe stands today in physical AI compared with the US and China. Compared to the US, 18% say Europe is ahead and a further 40% say it is about level, so 58% place Europe level or ahead. The picture against China is similar, with 21% saying Europe is ahead and 36% about level (57%).

Founders were then asked whether Europe is better, behind or about the same as the US on six specific factors:

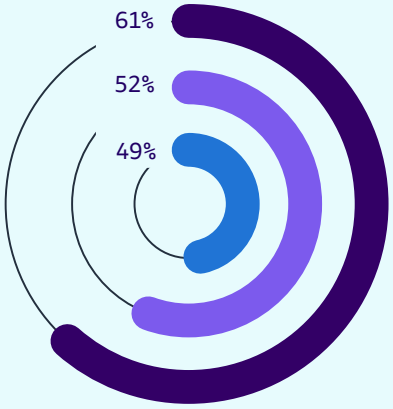
### Figure 1: Where Europe is strong, and where it needs to close gaps



Europe's clearest strengths lie in the conditions that get physical AI into a customer's facility. Asked how Europe compares with the US, eight in ten founders (80%) rate access to industrial and manufacturing customers as good as or better, alongside 73% for technical talent and 72% for the cost of building and operating. Views on hardware supply and regulation are more mixed, and chapter 5 sets out how regulatory fragmentation in particular slows founders down as they expand across European markets.

**Europe's advantages**

- Proximity to customers
- Depth of engineering and robotics talent
- World-class universities or research talent




Seventy-eight percent agree that being close to European industrial customers helps them get to production faster, and 58% say it is easier to run a real-world pilot in Europe than in the US, against 12% who disagree.

Access to capital is the exception. It is the only factor on which a clear majority of founders (71%) rate Europe worse than the US, and only 6% rate it better. Europe's strengths are concentrated in deployment. Capital is what a company needs to scale globally, and it is where founders see the most room for improvement.

Closing the capital gap would let Europe's strength in deployment translate into companies that scale globally from a European base.

***"The capital problem in Europe is less about where the funding comes from and more about where the growth is happening. Our Series C was led by Temasek, and global capital will find strong companies wherever they are. The more important dynamic is that companies build close to their customers. European industrial organisations tend to be more risk-averse and to favour large incumbent vendors, so more than half of our revenue today comes from the US. If growth stays concentrated outside Europe, a company's centre of gravity will drift with it over time. If Europe wants to build champions in physical AI, the more effective lever is demand-side stimulus that drives growth for these companies in European markets." – Jacomo Corbo, CEO, PhysicsX***

***"It's all well and good to bring something to R&D. Universities are fantastic in Europe, and you can come to breakthroughs with a fraction of the resources a US team might need. But scaling often requires vast resources and ecosystem collaboration. You really need real money for that, and to mature, this ecosystem will need a lot more capital at the scale-up stage, beyond Series A, beyond a working prototype or even a first deployment. That has historically been a bottleneck for us in Europe. What's really changed, and why we're excited, is that the urgency is there. We see international money coming into this space, so there is a true opportunity." – Mina Mutafchieva, Partner, HV***

*"Until now, every new robot and every new task meant a custom engineering project. We make it possible to bring a new robot or a new task and get a production-ready capability in days. Our model, Reflect, already runs on more than 15 robot morphologies and can integrate a new robot within hours. Europe is a natural home market for that. The region has a deep, automation-minded industrial base across sectors like automotive, pharma and manufacturing, which makes it a strong place to prove capabilities in demanding real-world settings. It also has world-class research and talent in robotics and machine learning. Zürich and ETH have produced a remarkable cluster of robotics and autonomy companies, and our own team grew out of that ecosystem." – **Nikita Rudin, Co-Founder & CEO, Flexion***

## 2. Europe has a deep talent pipeline, and its startups still struggle to hire

### Universities are feeding the sector

Europe's research institutions are a direct source of physical AI companies. Almost half (46%) of the startups surveyed are university spinouts or were founded by researchers and recent graduates, and three-quarters (75%) have some university connection. Among spinouts, the most common origins are:



12%

**ETH Zurich**



9%

**TU Munich**



7%

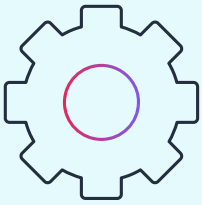
**University of Cambridge**

This pipeline is already producing new companies at pace, and the companies it produces plan to keep hiring, with founders expecting headcount to grow by a mean of 68% over the next two years.

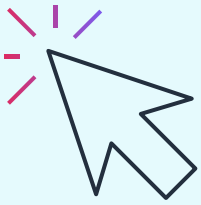
*"Europe has talent in abundance. The education and training that comes out of its universities is phenomenal, and that is a huge asset. We set Odyssey up as a transatlantic company from the outset, with teams in London and Zurich as well as Palo Alto, specifically to maximise our reach for talent, and that is unlikely to change. The strongest pull comes from ambitious problems, and if a role here offers the same opportunity to do similar work on similar terms, there is no reason to leave. DeepMind and Wayve have shown that in London over the past decade. Physical AI also plays to Europe's existing strengths in engineering and high-value manufacturing. That manufacturing is expensive, which makes it prime for automation and one of the best tools Europe has to build competitive advantage." – **Jeff Hawke, Co-Founder and CTO, Odyssey***

## Hiring the right people remains a challenge

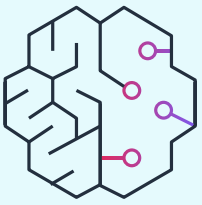
A strong pipeline has not solved the hiring problem founders face today. Finding the right skills is the most common answer when founders name their single biggest challenge to scaling (26%), just ahead of raising money (24%), and 58% agree that skills shortages are a major challenge to their ambitions. The hardest roles to fill are:



Robotics and mechatronics engineers (46%)



Machine learning and AI specialists (34%)



Hardware and electronics engineers (33%)

International demand for talent adds to the pressure. Nearly half (47%) of these startups lose people to US companies at least occasionally, and 14% say this happens regularly.

Even so, founders rate Europe's talent base strongly. Almost three-quarters (73%) say access to technical talent is better than or about the same as in the US.

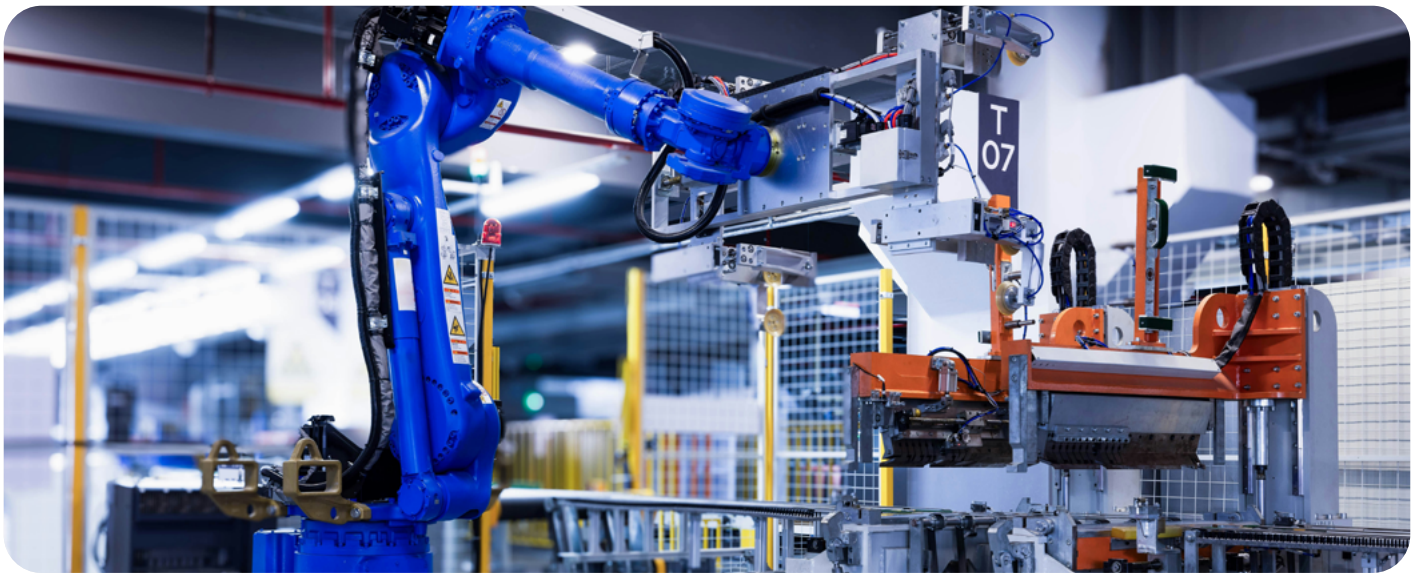
The sector is also creating jobs. Among the 78% of founders who gave a number, the median startup has created four net new physical AI roles in the past two years. Demand reaches beyond engineering: 24% find technicians and maintenance or field service staff hard to find, and only 41% agree that they can access the trades and technician skills needed to deploy and maintain their systems, while 34% disagree.

Talent is one of Europe's clearest strengths and one of the most immediate constraints on growth. With founders expecting to grow headcount over the next two years, they will need a steady supply of robotics, AI and hardware engineers. Expanding that supply, and keeping more of it in Europe, is one of the most direct ways to help startups move from pilot to production.



***"Many pilot projects deliver promising results in controlled environments, but industrial deployment requires consistent performance under real production conditions. What is often under-appreciated is the effort required to move from a successful pilot to stable industrial deployment. Our experience shows that success depends on combining technical innovation with operational integration, scalability and clear business value. That is why, when we select startup partners, we look for technological excellence, openness to collaboration and, most importantly, a shared commitment to industrialisation. Startups bring speed, specialised expertise and fresh perspectives, but success is ultimately determined by whether a solution can meet the demands of real-world production environments. The challenge is no longer proving that physical AI works. The challenge is scaling it reliably across industrial production. The companies that successfully bridge this gap will define the next generation of manufacturing."***
***– Mathias Mayer, Innovation Management / P-Lab Neckarsulm, AUDI AG***






## 3. Cloud and simulation infrastructure is the foundation founders build on

Physical AI relies heavily on compute. Almost three-quarters (73%) of these startups train their physical AI in the cloud, either entirely (61%) or alongside their own on-premise infrastructure (12%). The remaining 27% are a mixed group. Fifteen percent train on their own infrastructure and run inference at the edge, 6% run everything on their own infrastructure with no cloud, and 6% either do not train or run AI systems themselves (4%) or do not know (2%). Cloud use is not confined to the 73%, since only 7% report spending nothing on cloud compute or simulation.

Businesses highlight the importance of cloud infrastructure: 68% say cloud computing is essential to how they build, train or run their systems, and 56% say they could not have built their business without it. Seventy-one percent call simulation and synthetic data critical to developing their technology. When asked to identify obstacles to full production, access to compute or infrastructure is named by just 7% of founders.

However, almost half of founders (49%) agree that access to sufficient compute limits how fast they can develop. The constraints founders most often rate as major or moderate are managing multi-modal data pipelines (64%), the cost of simulation and training compute at scale (58%) and latency at the edge (57%). Looking ahead, founders expect simulation environments and digital twins (48%), data pipelines for real-world data (39%) and large-scale GPU training compute (36%) to matter most over the next two years.

The most common approach is to split workloads between the cloud and the device. Asked where they primarily train and run their physical AI systems, 44% of founders say they train in the cloud and run inference at the edge or on-device. Overall, 59% run inference at the edge or on-device.

This reflects how physical AI works in practice. Models are developed and trained on large-scale compute, then deployed onto machines that need to respond in real time on a factory floor or in the field. Of those who train or run systems themselves, 52% give latency as a reason for their setup, ahead of the cost of compute (39%) and the need to run without connectivity (34%).



***"Across Europe, we're seeing Physical AI startups move from prototypes to production by building continuous loops between real-world data, simulation, and deployment. Teams using NVIDIA Isaac and Cosmos are no longer asking only how to train a robot, but how to evaluate, adapt, and improve policies against the edge cases they encounter in the field. The arrival of frontier models is accelerating that shift, showing how general-purpose reasoning models can help reconstruct environments, generate and evaluate behaviors, and work alongside robotics-specific models. But it also reinforces why physics, validation, and safety matter, and why intelligence alone does not guarantee reliable physical behavior. That is why NVIDIA is building the foundational platform for Physical AI – an open, frontier-model-ready stack that lets founders bring together NVIDIA, third-party, or proprietary models and move seamlessly from simulation and post-training to validation, safety, and deployment at production scale." – Eran Rosenberg, EMEA Head of Physical AI and Robotics, NVIDIA***

*"Our goal is to deploy robots on industrial shop floors. However, making the transition from the lab is difficult. What's often missing is on-site data showing how the work is actually done, including the edge cases. Some machinery may be a hundred years old, and every workstation has its own quirks. There is no API for the physical world. To make a system work reliably at a reasonable cost, you need to understand the process on site, and you can't get that knowledge from the internet. My advice to industrial companies is to start collecting that data now. The hardware and models are improving all the time, and your competitors will not wait." – Aaron Rohmann, Director of Atlas, microagi*

Infrastructure is largely working in founders' favour on the path to production. Cloud training and simulation let startups develop and test systems before they reach a customer's site, which supports the move from pilot to deployment. Few founders name access to compute as an obstacle to full production, although many still feel its limits earlier on, with almost half saying it constrains how fast they can develop and a majority rating the cost of simulation and training at scale as a significant constraint. The obstacles founders name most often lie further along the path, led by long procurement cycles and integration with customers' existing systems.

**The Physical AI Toolchain on AWS**

AWS launched the Physical AI Toolchain in October 2026, an open-source stack for building machines that perceive, reason and act in the real world. Developed with NVIDIA's physical AI software and informed by Amazon's own robotics operations, it covers five stages of development: synthetic data generation, model training, simulation and validation, edge deployment, and continuous improvement, with operational data from deployed machines feeding back into training. Customers can adopt the full stack or choose individual components that fit their existing workflows. AWS says it can cut the time to launch a physical AI capability from years to weeks.



## 4. Capital is the clearest gap founders identify

Seven in ten founders (71%) say access to capital is worse in Europe than in the US, and only 6% say it is better. This is the only one of the six factors tested where a clear majority place Europe behind. The gap shows up in founders' own plans:

**59%**

call access to capital a major challenge to their ambitions

**26%**

have seriously considered moving their headquarters outside Europe specifically to raise money or scale, most often to the US (21%), and a further 19% considered it and chose to stay

**28%**

name funding the manufacturing and scale-up phase as an obstacle to full production

That last figure matters for a sector built on hardware. Physical AI companies need money to build machines, set up production lines and support customers on site, and this phase tends to arrive after early venture rounds and before revenue can carry the business.

Some of this capital is already arriving from outside traditional European venture. Corporate and strategic investors, including automakers, industrials and hyperscalers, back 31% of these startups, and US venture capital backs a further 27%.



***"We built Genesis AI across both sides of the Atlantic, because each market has different strengths. In Europe, we see extremely ambitious industrial companies in manufacturing and beyond that want to deploy robots, driven by the risk of labour shortages and competition. There is political support for the companies building here, and an incredible talent pool. Where Europe falls short is capital. Early rounds are manageable, but there is a real gap for further investments."***
***– Guillaume Soulé, Head of European Business, Genesis AI***



***"The biggest advantage Europe has is probably that we have a lot of industrial players with real-life data and environments, and a lot of know-how about automation, manufacturing and industrial processes. The other is academia. At the intersection of robotics and AI, or classic mechanical engineering and robotics, a lot of the best universities in the world are still European. The harder part is getting from pilots to the real world. A pilot often runs in a company's most digital factory, but there may be ten other factories that are perhaps twenty years behind, with tech stacks from the 70s or 80s and industrial controllers from different manufacturers. Integrating into that brownfield environment is still one key challenge." – Andreas Schwarzenbrunner, General Partner, Speedinvest***

Conditions are also moving in the right direction. Half of founders (50%) say fundraising conditions for physical AI in their market are better than 12 months ago, against 15% who say they are worse, and two-thirds (66%) plan to raise new funding within the next year, including 27% who are raising now. Public money plays a large part, with 51% having raised from government grants or public funding, second only to European venture capital (60%).

***"What is under-appreciated is everything required to make the intelligence work reliably in a real factory. Integration with automation, validation, safety, process context, data collection and learning from failures may ultimately matter as much as the model itself. The winners in Physical AI will therefore not necessarily be the companies with the most spectacular demos, but those that can turn new AI capabilities into repeatable production systems." – Eugen Solowjow, Head of Research Group - Embodied AI, Siemens***

## Founders remain confident despite the capital gap

A tension sits underneath these figures. Founders see capital as the clearest gap in Europe, yet 77% say they would headquarter in Europe again if they were founding their business today, against just 14% who would choose the US.

Their commitment to Europe should not be taken for granted, however. A quarter (26%) of physical AI founders have considered moving their headquarters out of Europe to raise money or scale, and if the capital gap persists, more of Europe's most promising companies may look to grow elsewhere.



Photo: UMA

## 5. Regulation and hardware supply add friction

### Regulation slows founders down

Sixty-four percent of founders agree that regulatory fragmentation or uncertainty slows them down, and only 26% agree that regulation in their market keeps pace with the technology. Much of the difficulty lies in working across different sets of rules as a startup expands from one European market into the next.

Founders describe regulation as a persistent source of friction that adds time and cost, particularly as they scale across borders. Fewer name it as their single biggest blocker to scaling (8%) than talent (26%) or capital (24%), but its effect builds with every new market a company enters.

Greater consistency between European markets would let startups reach more of the continent's industrial base without repeating the same work in each country.



*"Europe's engineering culture is rigorous about safety and quality, which is exactly what physical AI needs to earn trust in production. Frameworks like the AI Act can build trust, but companies need practical, predictable guidance on how they apply to robots and autonomous systems in industrial settings. Uncertainty slows decisions more than the rules do, so lean into the rules as a competitive advantage. Markets are also fragmented by language, regulation and procurement, which makes it harder for a startup to reach scale at home. Safety is non-negotiable, but simulation and digital twins let you be both rigorous and fast. Used well, those tools let Europe keep its quality standards and still move at a competitive pace."* ***– David Randle, Worldwide Head of Go-To-Market – Physical AI, AWS***



*"As Physical AI becomes relevant for more and more companies, the hard questions before deploying cognitive robots, such as humanoids, are not only technical. Acceptance, regulation and company rules all play a role. We address them in the NEURA Gyms, our physical training centers, where partners work on their own use cases together with us. They learn how to train a robot, how it feels to work next to one, what it is good at and what still needs improvement. Once a skill is learned, the Neuraverse platform lets it scale across fleets. So while we train the robot, we also train the company."*
***– Arne Nordmann, Vice President Technology & Innovation, NEURA Robotics***

### Hardware supply depends partly on sources outside Europe

Forty percent of these startups source their components domestically or elsewhere in Europe, 24% use a mix of sources and 14% source mainly from China. Thirty-five percent say access to components and hardware is worse in Europe than in the US, against 18% who say it is better.

For a sector built on physical products, supply chains matter more as companies grow. A startup can usually source enough parts for a pilot. Producing machines in volume for a customer's full operation depends on reliable access to components at the right cost and on predictable timelines.

Europe's supply base supports early development, but founders' views are mixed on how well it serves them as they grow. As more startups move into production, dependable access to components will become a larger factor in how quickly they can scale.

*"The US and China are ahead on the amount of capital being deployed in physical AI, but Europe has all the ingredients for modern robotics. The pressure on labour is greater here than in the US or China, so the pull from customers is stronger. Our customers in logistics and manufacturing can't afford to build highly automated sites and can't find the people to run conventional ones, so we don't have to push the technology to them. The talent is here as well, and almost half of the people who have joined us have moved back to Europe to do so. Where Europe can compete is speed of deployment, because the companies that get robots out of the lab and into real workplaces first will gather production data before anyone else. I'd like the conversation to move on from building in Europe for Europe to how European companies can win globally, and I believe we can lead real-world deployment from here."*
***– Antoine Paré, Head of Go-to-Market, UMA***

*"The technical challenge is what we solve during the demo. Once the tech is proven, the floor integration makes or breaks the entire business case. A factory is a well-oiled machine where every process is perfectly timed, and you're entering that optimised world. You need to communicate with the line, make sure it's safe and make sure information flows both ways, so that the system becomes part of the factory rather than a standalone system. Every minute it doesn't run is lost revenue for the customer. What's encouraging is the customer side. There's real awareness, they want to find European solutions and are eager to pilot the technology to see what it can do firsthand. During these pilots, their operational and integration requirements actively define the infrastructure and model harness surrounding the robot, turning it into a truly deployment-ready product."*
***– Mattia Arduini, Business Development Lead, mimic robotics***

## What founders want from government

Asked what they most want from government, founders put money and customers first:

**46%**
Grants, tax incentives or public funding

**44%**
Government acting as an early customer through public procurement

**40%**
Regulatory sandboxes to test in real-world conditions

**37%**
Funding for technical skills and training

**35%**
Clearer rules for deploying robots, drones and autonomous systems

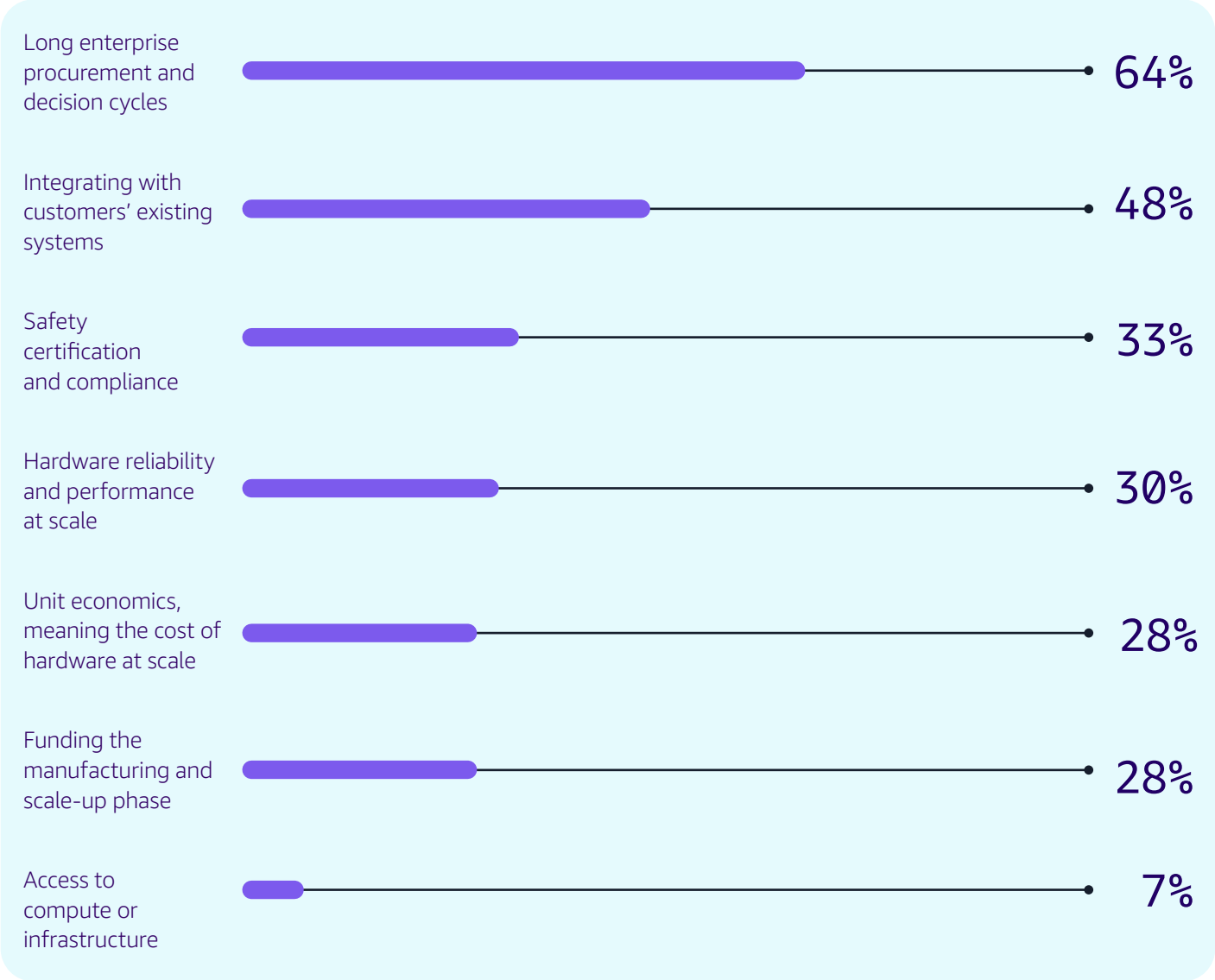
These priorities map onto the challenges founders describe elsewhere in this report. Public funding addresses the capital gap, and public procurement gives startups an early customer while enterprise purchasing remains slow. When founders ask for regulatory change, they favour practical measures, such as sandboxes that let them prove systems in real conditions.

Founders' asks of government follow directly from the challenges they face. Funding and early contracts would ease the pressure on capital and procurement, and sandboxes would give startups a faster route to proving their systems in the field.

## 6. Getting from pilot to production is where startups stall

Sixty-eight percent of founders agree that most physical AI startups in Europe get stuck at pilot stage, and only 12% disagree. Their own records bear this out: only 36% of founders who have run pilots have converted most or all of them into paid deployments.

Among startups that have reached prototype stage or beyond, the obstacles to full production founders name most often are:




### What gets a startup to deployment

Among startups already in commercial deployment, the single most important factor in getting there was a customer willing to co-develop and iterate with them (30%). That is well ahead of proving the unit economics (18%), meeting regulatory requirements (12%) or meeting safety requirements (11%).

Asked what one change would most speed up the path from pilot to production, founders' top answer is faster customer purchasing and decision-making (24%), followed by faster certification or regulatory sandboxes (15%).

Founders also point to the buyer's readiness. Fifty-seven percent agree that slow customer readiness is holding back their growth, and only 35% agree that their customers have the data, systems and processes to adopt what they build, while 38% disagree. Asked for their single biggest obstacle to scaling, 19% name long procurement and certification cycles and a further 11% say customers and the wider market are not yet ready. These two buyer-side answers together (30%) exceed skills (26%) and capital (24%).

*"Europe's physical AI founders have already done the hard part. They've built technology that works, and they're selling it to some of the most advanced and innovative industrial customers in the world. At this stage, they are often held back by the distance between a successful pilot and a production contract, and the capital to carry a hardware business across that line, rather than the product itself. Closing that gap is a shared job. Startups are supported when enterprises pilot with the intent to convert into deployment, when governments act as early customers, and when investors back founders throughout the longer timelines of building in the physical world. At AWS, that's where we're focusing our own support for startups: connecting founders with enterprise customers willing to co-develop with them, helping them prove a deployment is ready to scale, and aligning with investors who can fund the next stage. Europe has the customers, the talent and the factories. If we shorten the road from pilot to production, the founders building here today will shape where physical AI goes next." –* ***Jason Bennett, VP and Global Head of Startups and Venture Capital, AWS***

Much of what holds startups at pilot stage sits with the buyer. Procurement cycles, integration work and a customer's willingness to co-develop all depend on the enterprise as much as the startup. That gives enterprise customers, and the partners who support them, real influence over how fast Europe's pilots turn into deployments.

This is where Europe's opportunity is largest. Many of the conditions for successful deployment are already in place: working technology, industrial customers and startups ready to co-develop with them. What founders most need now is speed and predictability on the buyer's side.

Enterprises that design pilots with a clear route to production, and partners that help them validate systems with confidence and reach the right buyers, can shorten that path. Doing so would turn more of Europe's pilots into businesses at scale, and it is the focus of the second recommendation in this report.

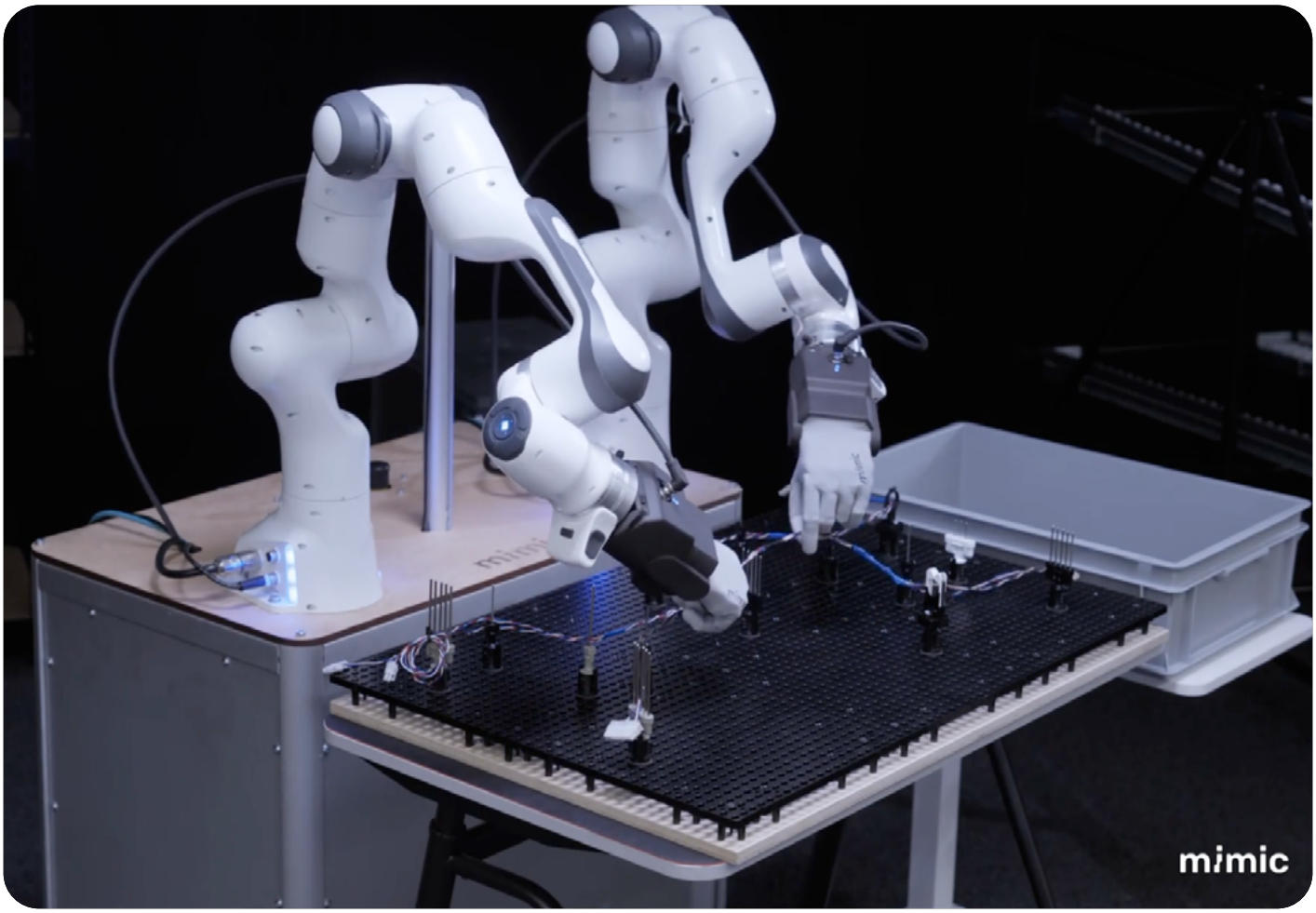



Photo: mimic robotics

## 7. Founders see the challenges, but most would build here again

Six in ten founders (61%) rate their own country as one of the best places in the world (14%) or a good place with some gaps (47%) to build a physical AI business today. Sixty-two percent say Europe has become more attractive as a place to build over the past two years, and 63% expect it to improve further over the next five. If founding their business again today, 77% would choose to headquarter in Europe, compared to 14% for the US.

These figures sit alongside the challenges set out elsewhere in this report:

**71%**

rate access to capital worse than in the US

**64%**

name long procurement cycles as an obstacle to full production

**47%**

lose talent to US companies at least occasionally



*"The opportunity is enormous, and it's arriving faster than many expect. Four in five founders expect physical AI to reshape large parts of the industries they serve within five years, and two-thirds say enterprise interest in their technology has grown over the past year. For Europe's productivity, that could be profound. The top reason customers give for adopting this technology is filling labour and skills shortages. That tells you this is about helping businesses keep production running and do work they can't currently staff. These startups are creating jobs too, and on average expect to grow their headcount by 68% over the next two years. What I see across the region makes me optimistic. Europe has the customers, the talent and the research base to lead in physical AI. If enterprises, investors, and governments work together to shorten the road from pilot to production, the companies building here today can grow into global leaders."* ***– Tanuja Randery, MD & VP, AWS EMEA***



*"Staying in Zurich was a very deliberate choice. In robotics, Europe's biggest strength is education. The quality is very high, and in many countries it is free or inexpensive. I'm American, but I did my master's and PhD here, and ETH Zurich is by far the best robotics institute in the world. That is why we are keeping our R&D headquarters here long term, because access to robotics specialists is much better than anywhere else. The funding climate has also flipped. A few years ago, friends starting robotics companies had to beg investors for money. Now investors approach us. We raised our pre-seed round entirely from Swiss and UK investors, and Europe now funds companies through Series A as well as the earliest cheques. For our next round, though, a large share will probably come from the US, where the appetite for larger rounds is greater, and many of our potential customers are based."*
***– Helen Oleynikova, Founder and CEO, Exclaim Robotics***

Founders' commitment to Europe gives the continent time to address the gaps they describe. Most would build here again, and most expect conditions to improve, but the challenges around capital, procurement and talent remain real. How quickly they are addressed will decide whether Europe's physical AI startups grow into global companies from a European base. The recommendations that follow set out where action would make the most difference.

## Recommendations

The ingredients for Europe to lead in physical AI already exist. What is missing is a system that lets companies scale from them. Founders' answers point to four areas for action.

### 1. Close the capital gap

Capital is the constraint founders rate most clearly, particularly when comparing to the US, and public funding through grants and tax incentives is their top ask of government (46%). Corporate and strategic investors, including automakers, industrials and hyperscalers, already back 31% of these startups, and US venture capital backs a further 27%. Deepening those cross-border pools of capital, and connecting European founders to them earlier, would target the gap founders rate as Europe's largest, particularly at the manufacturing and scale-up stage.



### 2. Shorten the distance between pilot and production

Long enterprise procurement and decision cycles are the obstacle founders name most often, and faster customer purchasing is the single change they most want (24%). Each part of the system can help:

- **Enterprises** can run pilots with a clear intent and route to convert
- **Technology partners such as AWS** can help validate deployments technically, so customers can move to production with confidence. The AWS Physical AI Toolchain brings simulation, training and edge deployment into one open-source workflow for this purpose. Technology partners can also open the go-to-market path, not just the technical one. Partners such as AWS pair credits and embedded technical experts with joint go-to-market and co-selling support, and with introductions to the enterprise customers and investors who decide how fast a pilot becomes a deployment. This gives founders a route to the buyers whose procurement cycles they most often cite as an obstacle to full production
- **Government** can act as an early customer through public procurement (44%) and expand regulatory sandboxes for real-world testing (40%)

### 3. Protect and grow the talent pipeline

Robotics and mechatronics engineers are the hardest roles to fill, and with strong international competition for these skills, almost half of startups lose staff to US companies at least occasionally. Three-quarters of these startups already have a university connection, with ETH Zurich, TU Munich and Cambridge the leading sources of spinouts. Targeted funding for technical skills and training, named by 37% of founders as a top ask of government, would build on a pipeline that already works.

### 4. Build on international standards and harmonise regulation across European and international markets

Regulatory fragmentation slows down 64% of founders, and 35% want clearer rules for deploying robots, drones and autonomous systems. Building on international standards and certification across European countries would let a startup approved in one country scale and deploy across others with less repeated work, and would remove a drag on scaling before it grows into a larger obstacle.



*"History tells us that industrial revolutions are won not by those who invent a technology and focus on the eureka moment, but by those bold enough to put it to work everywhere – on the factory floor, in the field, across the supply chain. Physical AI is Europe's moment, and the signs are unmistakable: more than half of Europe's physical AI startups already have their technology in commercial use, demand is outpacing what they can serve, and 77% of founders would build in Europe again. This is not a continent catching up – it is one ready to lead. But leadership is a choice, and it must be built. Europeans can seize this moment by opening capital at the scale-up stage, by turning pilots into production with governments as first customers, by growing a new generation of engineers and roboticists, and by simplifying and aligning the rules across markets so that a company can scale. This is where Europe's greatest advantage lies: simpler, consistent rules and a true digital single market would not slow this revolution down - they would let it move with confidence, and let Europe lead it with responsibility and safety at its core. Get these foundations right, and Europe will not simply take part in the age of physical AI. Europeans will reimagine what an industrial revolution can be and show the world what is possible."*
***– Sasha Rubel, Head of AI/Generative AI Policy EMEA, AWS***



*"What surprises people is that sector isn't the dividing line. You'll find leaders and laggards in manufacturing, logistics, energy, healthcare and defence alike. The difference is how a company frames the problem. The ones moving to deployment start from an operational pain they can measure, like throughput, safety incidents, downtime or labour gaps, and work backwards to the robot, the model and the digital twin. The ones getting stuck started from the technology, with an impressive demo and no clear owner on the operations side. Production happens when someone who runs the plant, the warehouse or the fleet owns the outcome. It also means designing for the second site on day one. A pilot proves something works once. Production proves it's repeatable."*
***– David Randle, Worldwide Head of Go-To-Market – Physical AI, AWS***

## Conclusion

Europe's physical AI startups have built a strong foundation. Half of those surveyed already have technology in commercial use, most sell to large enterprises and industrial groups, and many trace their origins to the continent's universities and research institutions. Their founders rate Europe highly regarding its access to customers, talent and the cost of building, and most would choose to build here again.

The evidence also points to two gaps that will determine how far this cohort can grow. The first is capital. Founders see access to funding as the area with the most room for improvement, and the need is greatest at the manufacturing and scale-up stage, when hardware companies must invest ahead of revenue. The second is the move from pilot to production. Demand is strong, but long procurement and decision cycles keep too many working systems at the trial stage.

Both gaps can be closed. Europe's industrial customers have a clear reason to adopt physical AI as skilled workers become harder to find, and its research base continues to produce the people and companies the sector needs. Investors, enterprise buyers, technology partners and policymakers each have a part to play, from deepening growth-stage capital to designing pilots with a clear route to deployment.

With that support, Europe is well placed to turn its early strength in deployment into physical AI companies that compete and scale globally from a European base.



## Appendix

**Methodology**

The findings in this report are based on a survey of 500 founders and senior leaders of physical AI startups headquartered across seven European markets: the UK, France, DACH (Germany, Austria and Switzerland), the Nordics, Benelux, Southern Europe and CEE. Fieldwork took place in August 2026.

Within this survey, a physical AI startup is a startup whose products or technology let machines sense, reason, act and learn in the physical world. This spans robotics, drones, autonomous vehicles, the AI models and software that control or perceive physical systems, and enabling technology such as simulation platforms, synthetic data and chips. Companies that only use physical AI built by others were not included. Comparisons with the US reflect founders' own assessment of the conditions for building a physical AI business in Europe, and do not depend on whether they sell in the US.

The survey was supplemented by in-depth interviews (written and verbal) with 21 industry experts, including founders, deployers, investors, and Amazon and AWS experts.

The research follows the professional standards and guidance of the UK Market Research Society (MRS) and ESOMAR. Responses are collected anonymously and reported only in aggregate, with no individual respondent or organisation identifiable.

Cover photo: mimic robotics

