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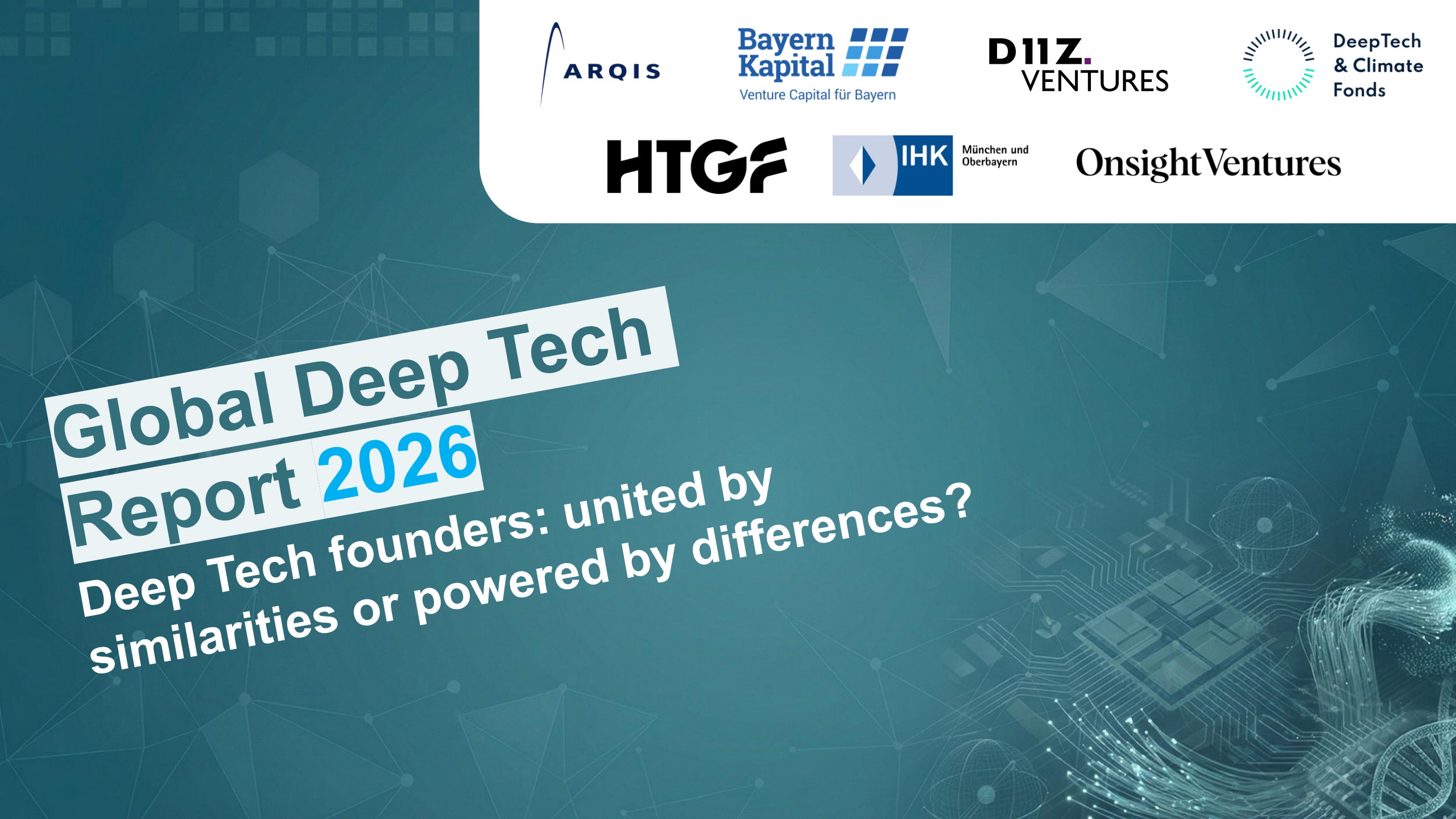
Global Deep Tech Report 2026

Deep Tech founders: united by similarities or powered by differences?



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Executive summary (1/2)

2. Deep Tech relevance & definition

Deep Tech denotes ventures whose competitive edge is grounded in scientific breakthroughs or engineering challenges, typically combining complex hardware with complex software. All available definitions converge on three shared characteristics: 1) these ventures are rooted in frontier science and engineering, 2) they are subject to long R&D cycles of roughly 7 to 15 years before commercialization, and 3) they are built on hard-to-imitate intellectual property. Deep Tech startups could generate $1tn in enterprise value plus ~1mn European jobs by 2030.

3. Dataset & methodology

The study rests on a first-of-its-kind dual dataset 1) 13.6k global Deep Tech startups (5k funding-validated, founded 2015–2024 with ≥$100k raised) and 11.5k LinkedIn founder profiles, triangulated across Dealroom, Pitchbook, Crunchbase, and LinkedIn).

4. Deep Tech startup characteristics

Regional distribution and funding gap. Europe leads the Deep Tech landscape with 6.1k startups, yet the US dominates as the largest country with 4.1k startups. Germany ranks 5th with 0.5k startups, placing it behind the UK (1.1k) and France (0.8k), a structural anomaly given Germany's economic weight. Europe accounts for 45% of global Deep Tech startups but captures only 17% of global Deep Tech funding. The top three Deep Tech funding hubs globally are San Francisco ($96bn), Palo Alto ($37bn), and Stockholm ($25bn), with Stockholm generating that total from just 99 startups, through exit-driven capital recycling (Spotify, Klarna), Vinnova-backed R&D grants and targeted tax incentives, and a constrained domestic market that forces founders to build globally scalable products from day one.

The scaling bottleneck. The Series A to Series B conversion rate in Europe is only 10% compared with North America's 24%, and Europe has 81% of its startups at or below 50 employees versus 68% in North America. North America's M&A exit rate stands at 8%, double Europe's 4%.

Patents & sub-industries. North America generates 51% of global Deep Tech patents with only 34% of startups, whereas Europe generates 29% of patents while hosting 45% of startups. The top three sub-industries are Novel AI (3.9k startups at an average of $44mn), Medtech and Biotechnology (2.4k at $20mn), and Semiconductors and Compute (1.6k at $41mn), while Quantum Technology has the fewest startups but the highest capital intensity at $56mn on average.

5. Deep Tech founding team characteristics

Education. 61% of founders hold either a Master's (4.1k) or a PhD (2.8k), making postgraduate education the baseline rather than the differentiator. The top educational fields are Engineering (3.6k), IT (2.6k), and Management (1.9k). Founder pipelines differ sharply by sector: Quantum Technology has a 76% PhD rate, indicating it remains a science-push rather than market-pull domain; Novel AI has a 32% Bachelor rate, reflecting the lowest technical barrier to entry of any Deep Tech segment. MIT and Stanford dominate the founder-university landscape, with a density of 56 and 35 founders per 1,000 students. Leading European schools such as Cambridge (13 per 1,000) and TUM (3 per 1,000) are an order of magnitude behind MIT.

Experience. Leadership experience (5.7k) and founder experience (4.3k) dwarf technical experience among Deep Tech founders, confirming that Deep Tech is not a first-time founder game. The top experience organizations include Self-Employed, Google, Microsoft, MIT, Stanford, Intel, and Nokia. Nokia's collapse represents the largest state-supported corporate-to-startup conversion wave observed. European Deep Tech founders trail their North American peers across three compounding credentialing dimensions, prior founding experience (36% vs 43%), prior Deep Tech experience (24% vs 33%), and top-10 university attendance (14% vs 29%).

Executive summary (2/2)

6. Deep Tech success factors

Founder human capital. Technical education in IT and Natural Sciences and management experience are the two strongest positive predictors of both capital raised and valuation. Management education carries a negative coefficient on capital, and technical experience on its own has no significant effect, showing that applied technical depth combined with operational managerial tenure increases Deep Tech success. Management experience peaks at roughly 18.3 years before diminishing returns set in, engineering experience peaks much earlier at around 5.3 years, and management education follows a U-shape that bottoms at approximately 2.5 years. *Deep Tech founder teams need to anchor themselves around scientifically trained technologists with recent engineering exposure and a mid-career operator, because the intersection of technical fluency and management judgment signals the ability to translate science into commercial execution.*

Founder team composition. Interaction effects dominate individual traits. The combination of management experience and engineering education is the strongest driver of capital raised. Graduation from a top-10 university paired with an engineering background, as well as prior Deep Tech experience combined with an engineering background, act as multipliers on fundraising and valuation. Shared technical expertise across co-founders is the strongest driver of both fundraising and exits, outweighing any individual founder's depth. *Deep Tech founder teams need to be built around two or more technically fluent co-founders who share a common scientific or engineering foundation with a commercial CEO, because only a shared technical understanding enables joint problem-solving and iteration speed.*

7. Implications

Founders. Set up the founding teams with shared technical understanding, because shared technical expertise across co-founders is the strongest driver of fundraising and exits. Given the structural serial-founder gap, first-time founders must over-weight technical education and recruit a co-founder with management and engineering experience. Treat patent filing as a day-one priority and leverage commercial evidence (e.g., LOIs, MOUs, binding pre-orders) for Series A raising.

Investors. Rewrite due-diligence frameworks to reward cross-disciplinary founder profiles and shared technical competency. Build syndicate capacity at Series D and beyond to close the 13.5 versus 8.4 average-investors-per-round gap that currently starves late-stage European scale-ups. Concentrate on the Series A to B bridge, where Europe converts only 10% of startups versus North America's 24%.

Educators. Integrate operational commercialization directly into technical degrees, recognizing that the European Paradox is an institutional-design failure rather than a talent shortage. The PhD pipeline remains a strategic European asset, but university-to-startup IP transfer is the binding bottleneck and must be reformed to unlock it. Universities should also institutionalize cross-disciplinary co-founder matching inside technical faculties, pairing PhDs and engineering candidates with operational peers.

Policymakers. Redirect capital from over-supplied pre-seed programs toward growth-stage co-investment vehicles, pension-fund mandate reform, and capital-gains reform. Compete where Europe holds structural advantage, Novel Energy, Quantum, and Medtech. IPO-market reform is the single most valuable unaddressed policy lever for unlocking Europe's Deep Tech capital-recycling flywheel. Deploy public procurement as strategic anchor demand in those same advantaged verticals, defense Quantum, energy-grid modernization, and Medtech, because governments are the only buyers with the balance-sheet durability to de-risk first-of-a-kind Deep Tech deployments and thereby supply founders with the tangible commercial evidence that currently separates Series A winners from the European pack.

What we will reveal

What makes our report unique

The first worldwide, comprehensive overview of Deep Tech startups and their founding teams

Based on a unique dataset of 13.6k Deep Tech startups (5k validated Deep Tech startups) and 11.5k Deep Tech startup founder

Data sourced from Dealroom, PitchBook, Crunchbase and LinkedIn

Answers what drives Deep Tech startup success (education, experience, team structure, location, funding dynamics)

Building on existing reports as a foundation

Definitions of Deep Tech and its key vertical segments

Deep Tech ecosystems and super-clusters

The influence of talent, markets, and capital, the role of Deep Tech universities

Economic, geopolitical, and societal impact of Deep Tech startups

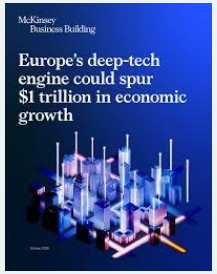
Funding landscape: analysis of investor influence (VC and PE) and geographic breakdown across funding stages

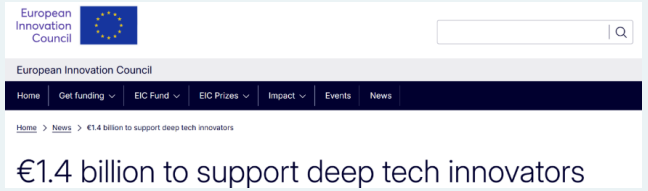
Limitations of existing reports

Existing Deep Tech reports focus on isolated, single data sources, a multi-source approach combining startup databases with founder information is missing

Other reports lack focus on founding teams as success drivers, what drives Deep Tech startup success (education, experience, team structure) has not been systematically examined until now

Global analysis is missing, previous work focuses on isolated Deep Tech verticals or regions





The authors of the global Deep Tech report

Benjamin Bandur

ARQIS

Dr. Mauritz von Einem

ARQIS

Ariel Merabi Golan

Bayern Kapital
Venture Capital für Bayern

Madeleine Guggenheim

Bayern Kapital
Venture Capital für Bayern

Julian Faber

D11Z. VENTURES

Tom Villinger

D11Z. VENTURES

Katharina Heim

D11Z. VENTURES

Dr. Anne Hinze

DeepTech & Climate Fonds

Stephanie Stein

DeepTech & Climate Fonds

Dr. Torsten Löffler

DeepTech & Climate Fonds

Tobias Jacob

HTGF

Gregor Haidl

HTGF

Elisabeth Paul

IHK München und Oberbayern

Bernhard Eichiner LL.M.

IHK München und Oberbayern

Georg Schulte-Holtey

IHK München und Oberbayern

Jasmin Güngör

OnsightVentures

Prof. Dr. Theresa Treffers

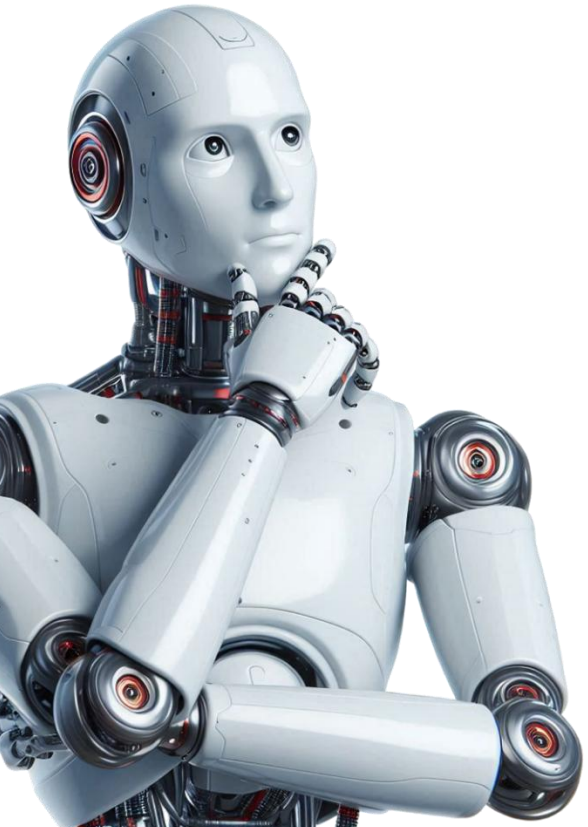
TUM

Jannik Nolden

TUM

Prof. Dr. Isabell M. Welpe

TUM



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There are many different definitions of Deep Tech in both research and practice

Science Practice

[…] disruptive solutions arising from **major technological or scientific advances** that are unique, well-protected, and often hard to reproduce. These disruptive solutions emerge from **pioneering work** in, for example, high precision engineering, mechatronics, electronics, photonics, new synthetic materials, and embedded software. […] The term “deep-tech” was also introduced, because popular terms such as “big-tech” and “high-tech” increasingly refer to technologies that are mostly or entirely software-driven and thereby less complex than deep-tech innovations that combine **extremely complex software with novel forms of complex hardware.**
Romme et al. (2023); Journal of Organization Design

Deep Tech is that part of the solution space based on **breakthrough science and engineering.** Thus, Deep Tech ventures are those whose innovative solution **is grounded in science and technology**. As such, Deep Tech ventures have “the potential to dominate the future in many ways” but more importantly, have a variety of characteristics with respect to **time, capital intensity and uncertainty** that require new or adapted approaches to their founding, growth, and support, not only in their early stages, but also when entering the scale-up phase
MIT REAP (2025)

An area of business or research that involves using **advanced science and technology**, such as artificial intelligence, blockchain, or advances in biotechnology, **to provide solutions to complicated problems**: Deep Tech, or Deep Technology, refers to companies, typically startups, whose business model is based on high tech innovation or significant scientific advances. **Deep Tech has been referred to as the fourth wave of innovation after the industrial revolution**, the information revolution, and the digital revolution.
Cambridge Dictionary (2026)

1. the use of the latest **scientific findings**
2. the use of the latest **technologies**,
3. long development **time before market launch**
Startupverband (2025)

Deep Tech is defined as **novel scientific or engineering breakthroughs** making their **way into products and companies for the first time**. Scientific and engineering breakthroughs have changed our lives immeasurably over the last century and even within the last 30 years as advances in telecoms, robotics and AI make their way from labs into our homes and workplaces. Looking forward, we need **disruptive innovations more than ever to solve global challenges** like climate change, resource scarcity or looming demographic and productivity crises.
Lakestar, Walden Catalyst & Dealroom (2026)

“Deep Tech” refers to a category of technology that is based on **substantial scientific or engineering challenges.** These technologies are typically at the forefront of innovation and are characterized by both their potential to catalyze significant breakthroughs in solving complex problems and their capacity to create new markets or disrupt existing ones. In contrast, “traditional tech” or “regular tech” usually refers to technologies based on existing, well-understood, and widely implemented scientific principles and engineering techniques.
McKinsey (2026)

Deep Tech is relevant for wealth and sovereignty

Relevance for practice

Wealth

Higher returns than regular tech: Deep Tech delivers a 16% average net IRR versus 10% for traditional software, driven by winner-takes-most dynamics in structurally advantaged verticals such as Novel Energy, Quantum, and Medtech

Different risk profile, not worse: Deep Tech requires higher absolute capital than regular software, but materially greater access to non-dilutive funding, grants, soft loans, and public co-investment, reduces founder and LP dilution, reshaping the capital path rather than making it uniformly less efficient

Investing in European Deep Tech could create $1tn in enterprise value and up to 1mn new jobs by 2030

Sovereignty

Investing in Deep Tech is crucial for ensuring **regional sovereignty and autonomy**[3]

Europe holds 7 of the top 10 WIPO Global Innovation Index positions, yet more than 50% of growth-stage capital comes from non-European investors, creating systemic sovereign vulnerability

Sources: McKinsey & Company (2025). Orchestrating Europe's deeptech funding: A blueprint to bridge the financing gap. McKinsey & Company. https://www.mckinsey.de/publikationen/finanzierung-von-deep-tech-in-Europa; McKinsey & Company. (2024). European Deep Tech – Opportunities and discoveries: An investment perspective. McKinsey & Company. https://www.mckinsey.de/~/media/mckinsey/locations/europe and middle east/deutschland/publikationen/2024-07-25 european Deep Tech/deeptech_myths_mckinsey_report_vf.pdf; McKinsey & Company (2025). Europe's deep-tech engine could spur $1 trillion in economic growth. McKinsey & Company. https://www.mckinsey.com/capabilities/business-building/our-insights/europes-deep-tech-engine-could-spur-1-trillion-in-economic-growth; Atomico. (2024). State of European Tech 2024. https://stateofeuropeantech.com/

Insights

Deep Tech delivers superior risk-adjusted returns, not because risk is lower, but because non-dilutive funding (grants, soft loans, public co-investment) structurally reshapes the capital path

Deep Tech is increasingly a geopolitical asset, not just an economic one

"Deep Tech is not new, but it has become increasingly relevant as Europe's answer to low economic growth. Europe's "unfair advantage" lies in leveraging the state and established industrial infrastructure as anchor customers. This advantage could become a burden if financial risk is avoided and procurement decisions are driven by maintenance requirements rather than innovation."

Jannik Nolden
PhD Student, TUM

"Deep Tech is no longer just an economic driver, it's the question of European sovereignty."

Tom Villinger
CEO, D11Z. Ventures

The secret of successful Deep Tech is to overcome the valley of death

Valley of death

Deep Tech startups face the Valley of Death, where over 90% fail due to funding gaps

- **Valley 1:** discovery to proof of concept: public grants are too limited and slow; VCs demand technical proof points not yet available at the pre-seed/seed stage
- **Valley 2:** pilot to commercial deployment (Rounds B-C+): start-ups need €50-200mn but have outgrown VC capacity without the commercial proof required by infrastructure investors and banks

No single capital source bridges both valleys: hybrid models combining equity, debt, grants, and revenue-based financing are mandatory

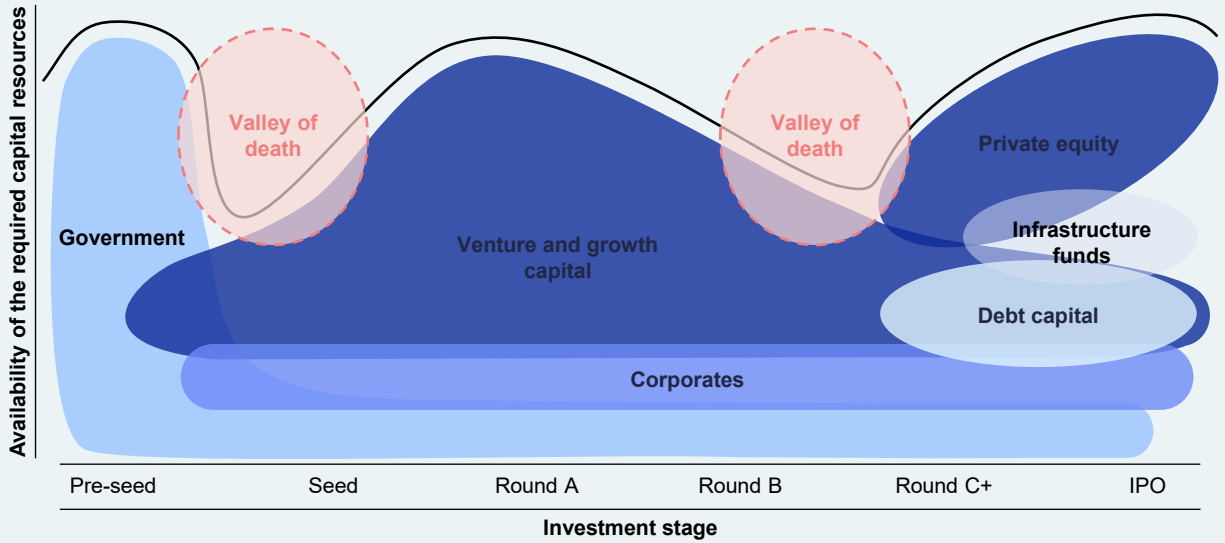


Illustration: Own illustration according to McKinsey & Company (2025)

"Going one step further, the secret to overcoming the valley of death is identifying early whether your company is actually venture-scale. Only a small number are."

Jasmin Güngör
General Partner, Onsight Ventures

"Deep Tech startups face not one but two distinct funding gaps and no single capital source bridges both. Closing the valley of death requires hybrid financing models that combine public grants, venture capital, and debt in a coordinated, stage-appropriate way."

Ariel Merabi Golan
Investment Director, Bayern Kapital

Source: 1) Romme, A. G. L. (2022). Against All Odds: How Eindhoven Emerged as a Deeptech Ecosystem. Systems, 10(4), 119. https://doi.org/10.3390/systems10040119; Source of content: 1) McKinsey & Company (2025). Orchestrating Europe's deeptech funding: A blueprint to bridge the financing gap. https://www.mckinsey.de/publikationen/finanzierung-von-deep-tech-in-europa; 2) McKinsey & Company (2025). Europe's deep-tech engine could spur $1 trillion in economic growth. https://www.mckinsey.com/capabilities/business-building/our-insights/europes-deep-tech-engine-could-spur-1-trillion-in-economic-growth

Deep Tech startups are different to regular Tech startups

Deep Tech vs. Regular Tech

Deep Tech startups offer unique benefits due to their reliance on breakthrough technologies that merge complex hardware and software, enabling disruptive innovations across industries.[1]

Deep Tech startups are different from regular tech startups as they face unique challenges: i) technological risk of implementation complexity, ii) investment risk of high financial and human resource needs, and iii) collaborative risk of the required innovation ecosystem.[1,2,3]

Regular Tech startups are driven by the adoption and deployment of advanced technologies based on existing scientific principles and engineering techniques.[4]

	Deep Tech[1]	Regular Tech[4]
Commercialization of advanced technology	✓	✓
Based on scientific breakthrough	✓	
Complex software with industrial application	✓	✓
High R&D intensity	✓	
Solving profound societal challenges	✓	✓

"In Deep Tech, building the technology is only half the battle. The real challenge is making something people will actually pay for. The moat is deeper, but the climb to market is much tougher."

Tom Villinger
CEO, D11Z. Ventures

Source: 1) Perelmuter G (2021) Present future: business, science, and the Deep Tech revolution. Fast Company, New York; 2) Romme, A. G. L. (2022). Against All Odds: How Eindhoven Emerged as a Deep Tech Ecosystem. Systems, 10(4), 119. https://doi.org/10.3390/systems10040119; 3) Gbadegeshin, S. A., Natsheh, A. A., Ghafel, K., Mohammed, O., Koskela, A., Rimpiläinen, A., Tikkanen, J., & Kuoppala, A. (2022). Overcoming the Valley of Death: A New Model for High Technology startups. Sustainable Futures, 4, 100077. https://doi.org/10.1016/j.sftr.2022.100077; 4) Colombo, M. G., & Grilli, L. (2005). Founders' human capital and the growth of new technology-based firms: A competence-based view. Research Policy, 34(6), 795–816. 10.1016/j.respol.2005.03.010; Source of table: Own thoughts

Founders' human capital can help Deep Tech startups to overcome the valley of death

What science says

Human capital

General: formal education and general work experience[1,2] has strongest impact on funding during an economic crisis[3]

Specific: industry-specific knowledge, technical experience, and prior entrepreneurial experience[1,2] predict first round funding[2]

The signaling function of education and experience is dynamic across venture stages

Human capital shape skills that a startup founder can leverage in entrepreneurial activities, significantly increasing the amount of funding received[2,4]

Team composition

Team composition - encompassing **functional, educational, experiential, cognitive, and identity-based differences -** is positively related to innovation and positively associated with received investment[5,6]

Cognitive diversity can boost team performance in complex tasks like innovation, but its benefits depend on shared values or aligned processes within the team[5]

Source: 1) Garkavenko, M., Beliaeva, T., Gaussier, E., Mirisaee, H., Lagnier, C., & Guerraz, A. (2023). Assessing the factors related to a start-up's valuation using prediction and causal discovery. Entrepreneurship Theory and Practice, 47(5), 2017–2044. https://doi.org/10.1177/10422587221121291; 2) Ko, E.-J., & McKelvie, A. (2018). Signaling for more money: The roles of founders' human capital and investor prominence in resource acquisition across different stages of firm development. Journal of Business Venturing, 33(4), 438–454. https://doi.org/10.1016/j.jbusvent.2018.03.001; 3) Gruber, M., Dencker, J. C., & Nikiforou, A. (Iro). (2024). How Founder Human Capital and Founding Conditions Shape New Firm Performance: A Study of Necessity Entrepreneurship during Times of Economic Crisis. Academy of Management Journal, 67(2), 382–406. https://doi.org/10.5465/amj.2022.0405; 4) Colombo, M. G., & Grilli, L. (2010). On growth drivers of high-tech start-ups: Exploring the role of founders' human capital and venture capital. Journal of Business Venturing, 25(6), 610–626. https://doi.org/10.1016/j.jbusvent.2009.01.005; 5) Page, S. E. (2007). Making the difference: Applying a logic of diversity. Academy of Management Perspectives, 21(4), 6–20. https://doi.org/10.5465/amp.2007.27895335; 6) Wise, S., Yeganegi, S., & Laplume, A. O. (2022). Startup team ethnic diversity and investment capital raised. Journal of Business Venturing Insights, 17, e00314. https://doi.org/10.1016/j.jbvi.2022.e00314

Especially important for Deep Tech

Deep Tech startups can take 7-15 years to reach commercialization, so the team's ability to navigate prolonged uncertainty hinges almost entirely on the founding team credibility and resilience

In early-stage Deep Tech investing, the founding team is the primary de-risking lever

"Only a few founders combine Deep Technical understanding with relentless execution and a clear understanding of what investors and customers want."

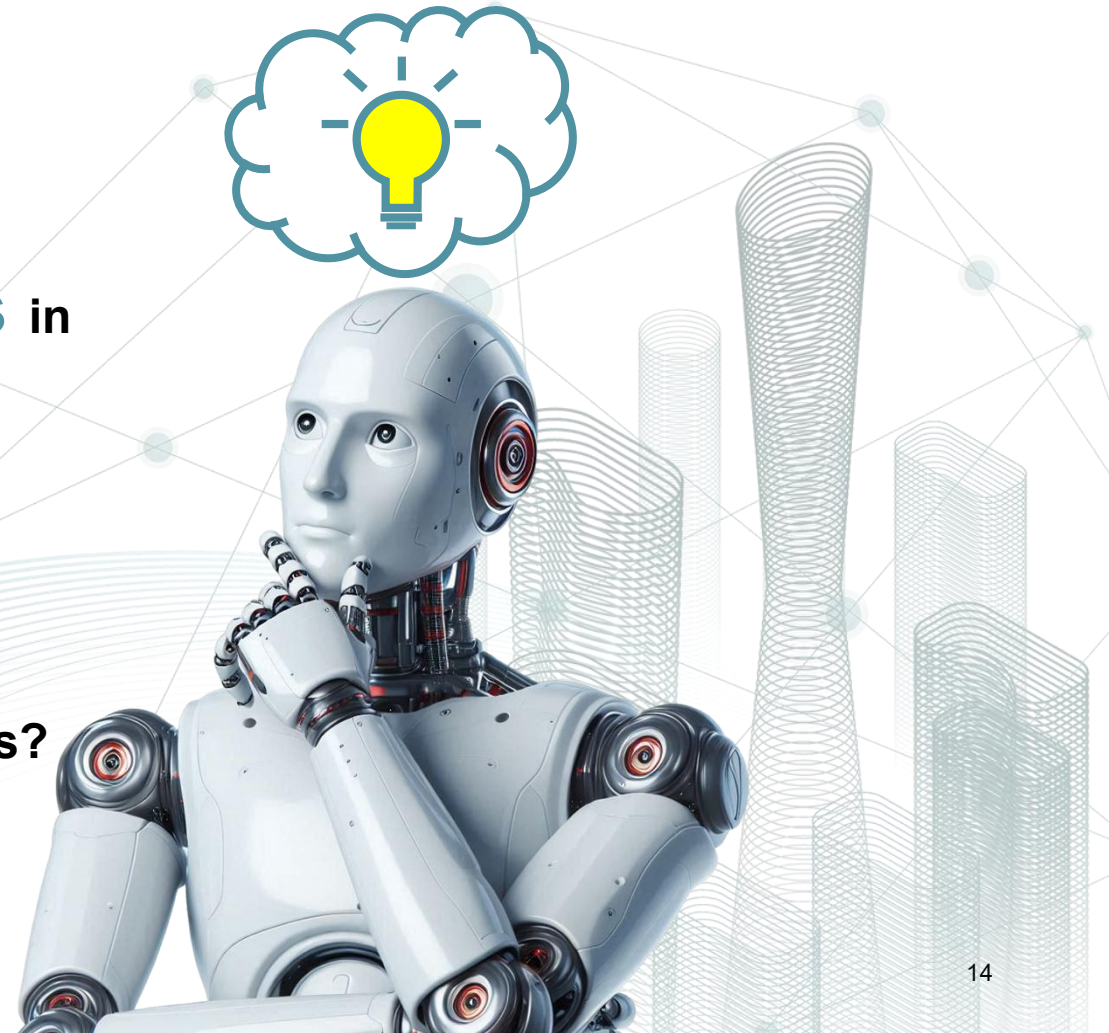
Jasmin Güngör
General Partner, Onsight Ventures

What is missing to decode Deep Tech startups?

1. What educational backgrounds and prior professional experiences are most common among Deep Tech founding teams?

2. How do Deep Tech founding teams in Europe differ from those in North America?

3. Which Deep Tech founding team compositions are most successful in terms of securing funding and achieving higher valuations?



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We work with a robust and global dataset that is unparalleled, designed to generate unique insights

			# of organizations	1		2
	48.7k	**20.3k**	**15.2k**	**13.6k**	**5k**	**11.5k**
						# of founders
Data source	**Deep Tech organizations** Deep Tech tag on Dealroom	**Funding information** +$100k funding received	**Startup maturity** Deep Tech organizations founded ≤ 10 years ago	**Matched organizations** Deep Tech startups found on Dealroom and Pitchbook	**Funding information validated** Deep Tech organization funding validated	**Human Capital information** Education and experience information on LinkedIn
	dealroom.co	dealroom.co	dealroom.co	dealroom.co	dealroom.co	in
Validation source				**Matching** Identified organizations on Pitchbook	**Funding reliability** Funding information within ≤ 10% deviation	
				PitchBook	crunchbase	

Our study in a nutshell

Research focus areas

Data

1

Deep Tech startup characteristics

+13,600

Deep Tech startup information

PitchBook
dealroom.co
crunchbase

2

Founder human capital

+5,000

Deep Tech startup information

PitchBook
dealroom.co
crunchbase

Founding team composition

+11,500

Deep Tech founder information

LinkedIn

Insights

Our study is based on two interconnected datasets. The analyses are structured as follows:

- **1. Dataset** focuses on global Deep Tech startups and their characteristics
- **2. Dataset** centers on the founders human capital and the composition of the founding team

"The dataset at hand is unique in that we combined global deep tech startup information with detailed founder information on education and experience. The study builds on existing research and closes the missing gap in understanding how founder teams need to be structured."

Jannik Nolden
PhD Student, TUM

Startup characteristics, human capital and team composition are associated with Deep Tech startup success

Startup characteristics

- Startup founding year
- Deep Tech vertical
- Number of patents
- Number of founder

Founder human Capital

- Experience field and organization
- Education degree & university
- Deep Tech experience
- Top 10 university attendance

Founding team composition

- Founding team human capital combinations
- Founding team competency sharedness

Deep Tech startup success

- Raised capital
- Valuation
- Exits
- High-flyer

The focus of the following analysis lies on all 13.6k global Deep Tech startups

			# of organizations	1		2
	48.7k	**20.3k**	**15.2k**	**13.6k**	**5k**	**11.5k**
						# of founders
Data source	**Deep Tech organizations** Deep Tech tag on Dealroom	**Funding information** +$100k funding received	**Startup maturity** Deep Tech organizations founded ≤ 10 years ago	**Matched organizations** Deep Tech startups found on Dealroom and Pitchbook	**Funding information validated** Deep Tech organization funding validated	**Human Capital information** Education and experience information on LinkedIn
	dealroom.co	dealroom.co	dealroom.co	dealroom.co	dealroom.co	in
Validation source				**Matching** Identified organizations on Pitchbook PitchBook	**Funding reliability** Funding information within ≤ 10% deviation crunchbase	

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Deep Tech is a winner-takes-most market, the top tier captures nearly all capital

Global Deep Tech startups

13.6k Deep Tech startups

103 different Deep Tech HQ

$542.7bn total global funding in Deep Tech startups

$39.9mn funding on average per Deep Tech startup

$2.1mn median funding per Deep Tech startup

747.5k total employees of Deep Tech startups in 2024

55 employees on average per Deep Tech startup

13 median employees per Deep Tech startup

132.9k total patent documents of Deep Tech startups in 2024

9.8 patents on average per Deep Tech startup

0 median patents per Deep Tech startup

Insights

The average funding for a Deep Tech startup is $39.9mn, while the median is only $2.1mn indicating that a small number of startups receive large funding rounds

"Deep Tech ecosystems are ultimately defined by their ability to turn innovation into liquidity, without strong exit pathways, capital cannot recycle and Europe will struggle to sustain global competitiveness."

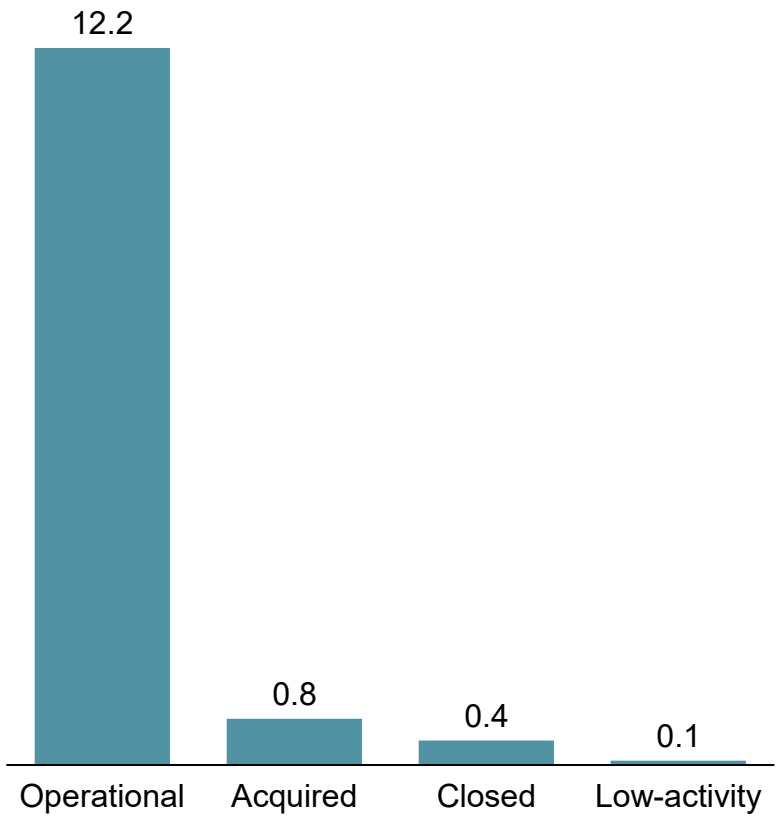
Dr. Torsten Löffler
Investment Director, DTCF

"There are only very few winning Deep Tech teams which successfully manage the complexity of founding a Deep Tech startup and raise enough capital. This ability to continuously fundraise large amounts is in practice a key success factor of successful Deep Tech teams."

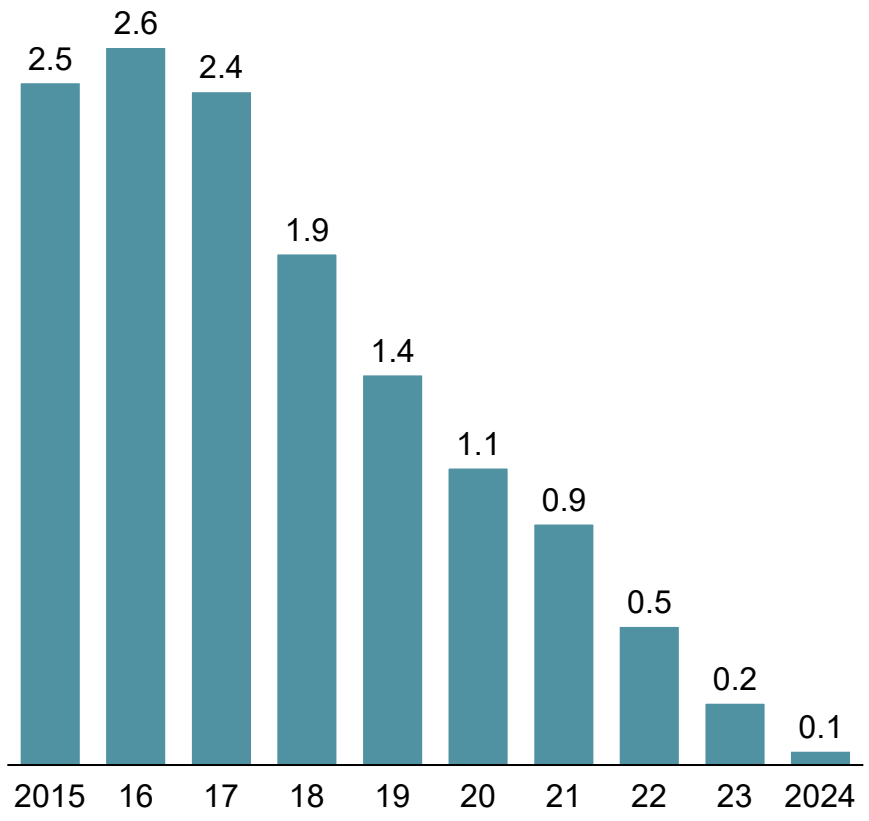
Gregor Haidl
Partner, HTGF

Over 50 % of Deep Tech startups were founded between 2015 and 2017

Deep Tech startups by activity, in k



Deep Tech startups by founding year, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Post-2017 decline in new Deep Tech startups, annual formations decreased from 2.6k (2016) to 1.1k (2020) and fell below 1k after 2021, partly reflecting the lag between founding and received funding and time required to gain visibility in global startup databases

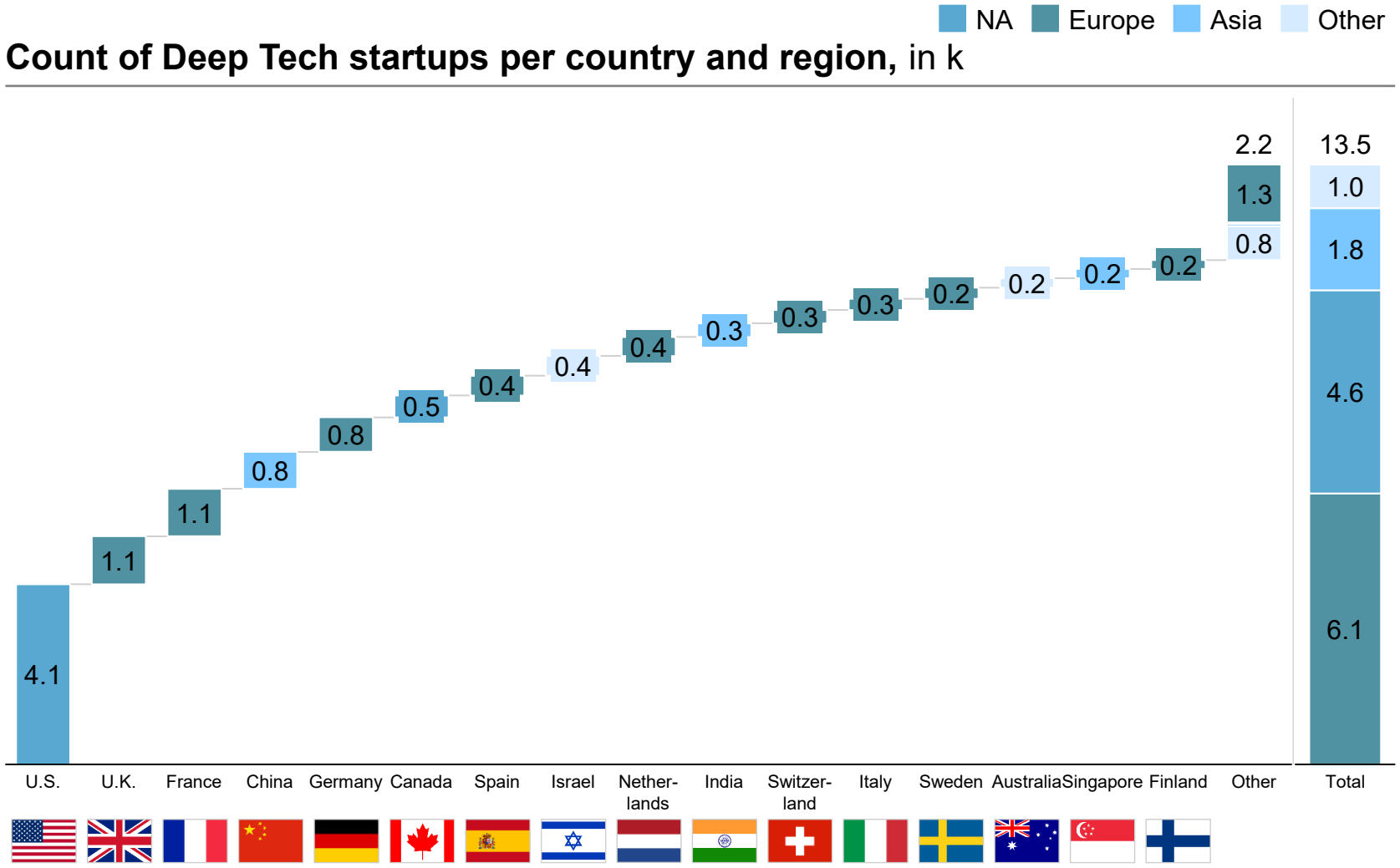
The vast majority of Deep Tech startups (~12.2k) remain operational, with relatively few closures (~0.4k) and limited low-activity cases (~0.1k)

"This trend partly reflects structural factors such as the time lag between a companys founding, its first institutional funding round and its subsequent visibility in international startup databases. Deep Tech ventures often operate hidden for extended periods due to long R&D cycles and IP considerations."

Dr. Mauritz von Einem
Partner, ARQIS

Europe leads the Deep Tech frontier with 6.1k startups in the entire regional ecosystem

Count of Deep Tech startups per country and region, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Europe leads the Deep Tech landscape and collectively surpasses all other regions with 6.1k startups, representing the largest regional ecosystem

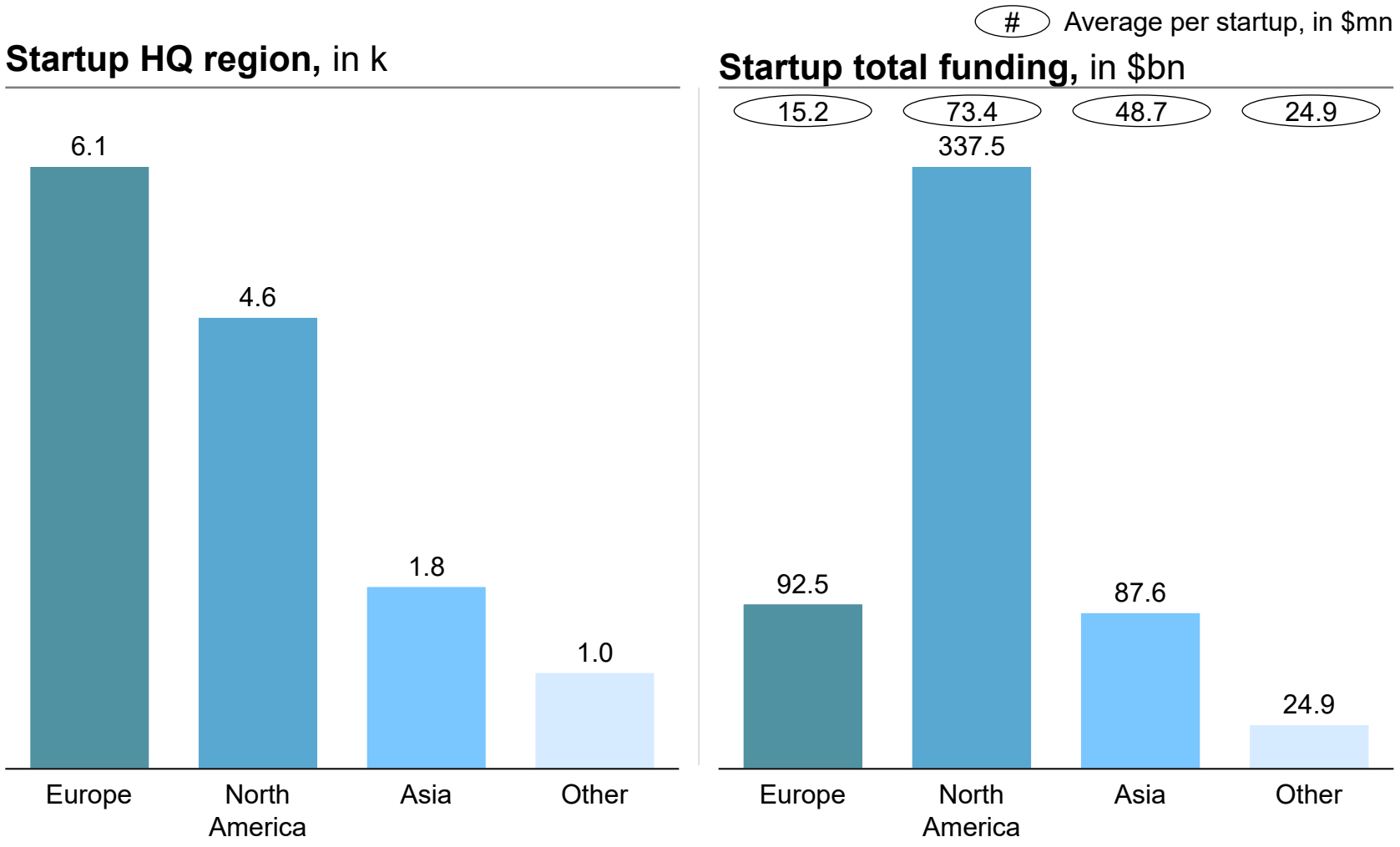
The U.S. remains the largest single-country, with 4.1k startups, significantly ahead of any individual European country

Germany (0.5k) ranks 5th globally despite being Europes largest economy, trailing the UK (1.1k) and France (0.8k) significantly, pointing to structural gaps in scaling Deep Tech startups

"Europe leads the global Deep Tech landscape through collective strength, with more than 6,000 startups demonstrating not only ecosystem scale, but also the strong ambition and commitment of its founders."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

Europe's ~5x funding gap per startup vs. North America is a structural threat, not a cyclical shortfall



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Europe accounts for 45% of global Deep Tech startups but only 17% of funding, a capital efficiency that is unlikely to self-correct without systemic policy intervention

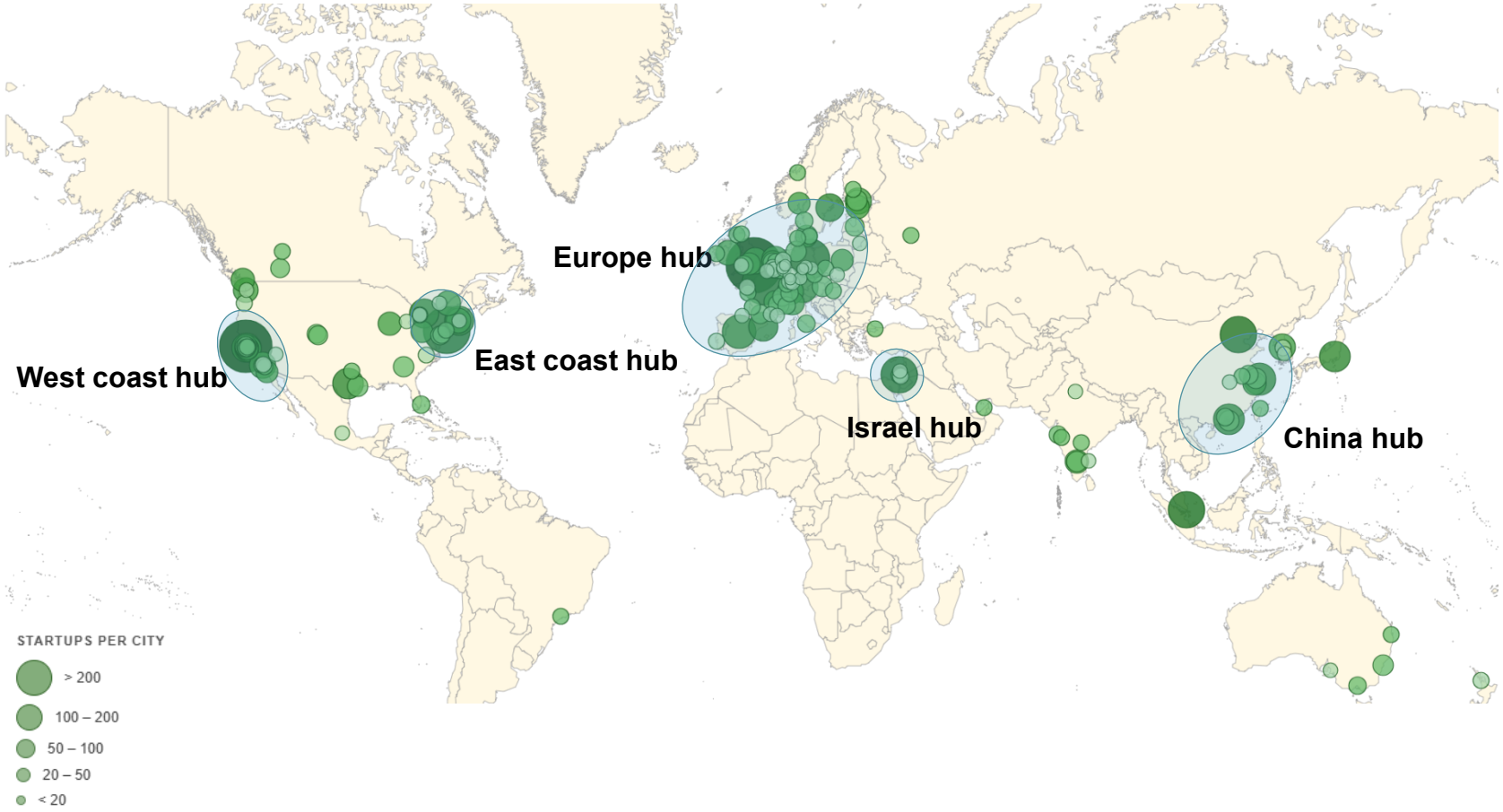
North America's $337.5bn vs. Europe's $92.5bn represents a $245bn gap that compounds with each funding round, as underfunded European startups cannot afford the longer R&D cycles

"North America benefits from deeper and more mature venture capital pools, enabling larger ticket sizes and more consistent access to late-stage financing. This funding gap underscores the importance of tailored financing strategies for European Deep Tech companies, including the combination of private capital, public funding and strategic partnerships."

Benjamin Bandur
Counsel, ARQIS

Deep Tech's geographic clustering around 5 global hubs shows that ecosystem proximity drives innovation

Global HQ location of Deep Tech startups, in # of startups



Insights

Europe is the largest hub, driven by dense startup clusters in Germany, the UK

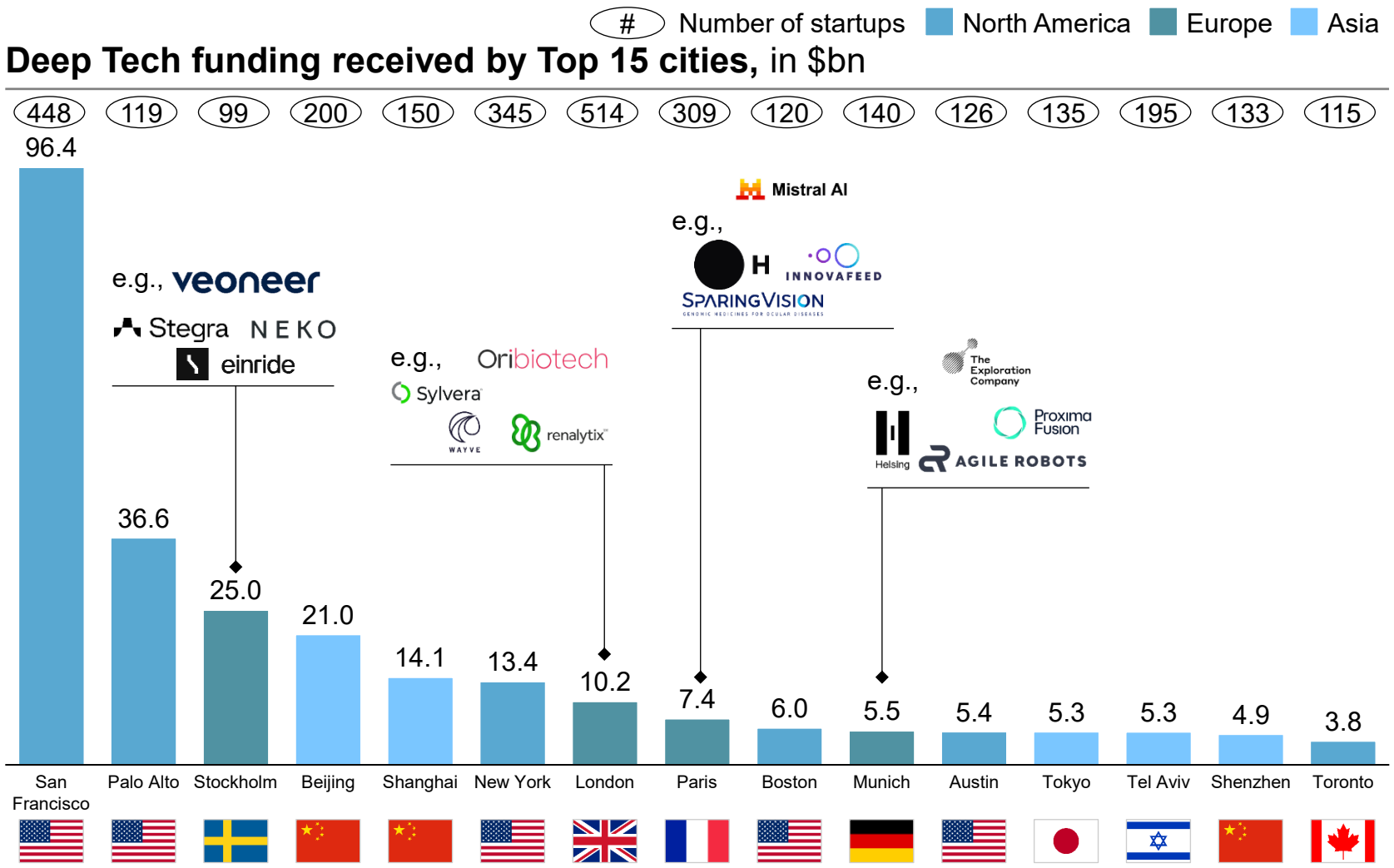
The US East & West coasts remain critical Deep Tech anchors, with cities like Boston and San Francisco

Israel's standalone hub status, well above its GDP weight, demonstrates that hub formation is about university-industry-capital density, not country size, offering a replicable playbook that most large European nations have yet to fully execute

"The clustering around a few hubs shows: Deep Tech does not emerge everywhere, but where university, capital, and industry are within walking distance of each other. Ecosystems cannot be decreed, but their preconditions can."

Prof. Dr. Isabell M. Welpe,
Professor, TUM

U.S. cities are the leading Deep Tech funding hubs



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Stockholm ($25bn, 99 startups) achieves ~2.5x London's funding-per-startup ratio

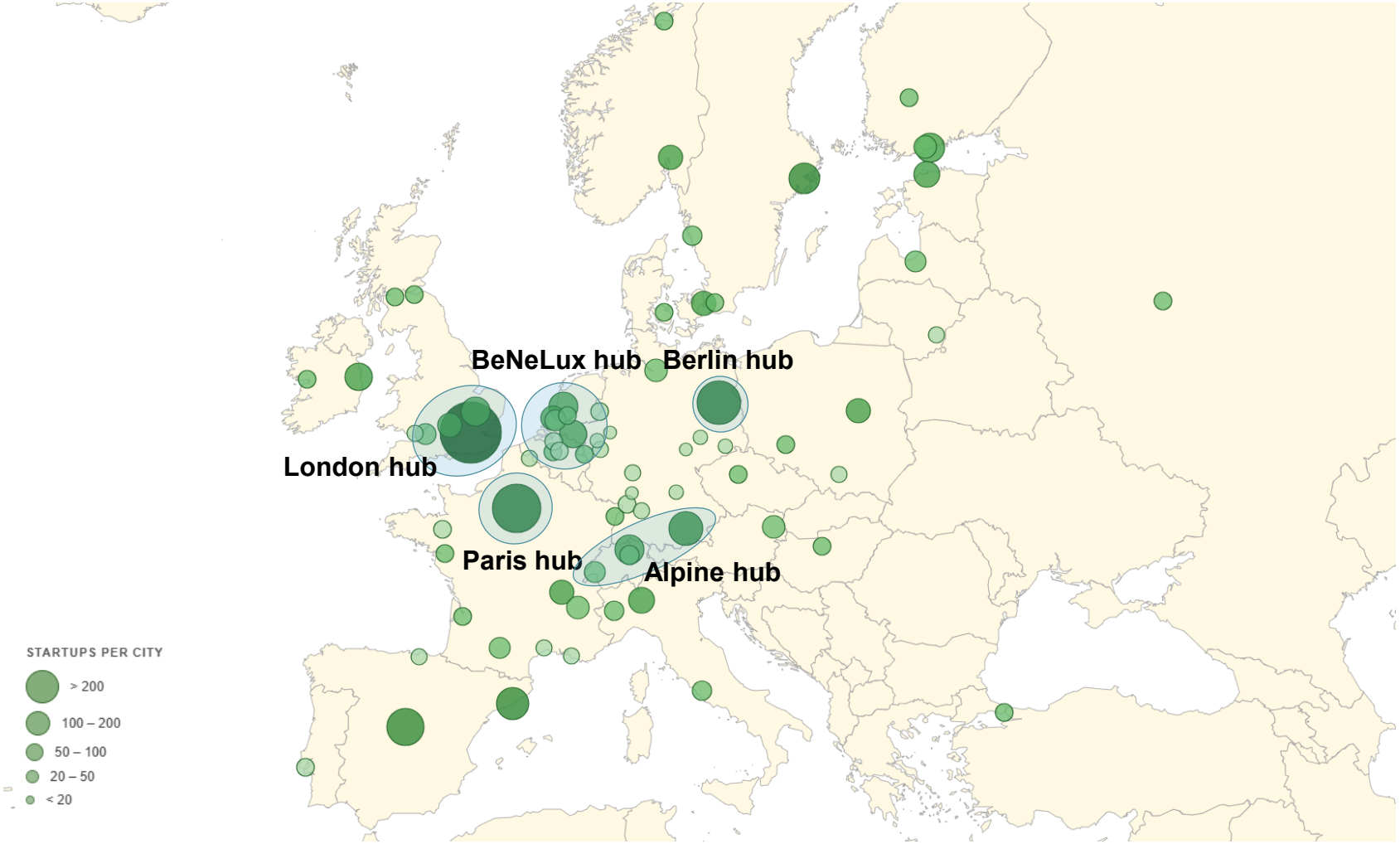
- **Powerful multiplier effect through exits (Spotify and Klarna)** continuously recycle capital, expertise, and "mafia" talent back into the ecosystem
- **Generous R&D grants** (e.g., Vinnova), startup subsidies, and targeted tax incentives
- **"Forced" global focus through constrained domestic market** ensures Swedish startups build scalable products from day one

"Deep Tech funding concentrates in a small number of global cities, European hubs must close the gap in both capital volume and ecosystem density to compete for the next generation of category-defining companies."

Ariel Merabi Golan
Investment Director,
Bayern Kapital

London's dominance and the BeNeLux-Alpine-Berlin corridor define the European Deep Tech landscape

European HQ location of Deep Tech startups, in # of startups



Insights

London's position as Europe's #1 city despite Brexit-era talent friction highlights that Deep Tech ecosystems are more durable than political shocks, world-class universities and deep capital markets act as gravity wells that are extremely difficult to displace

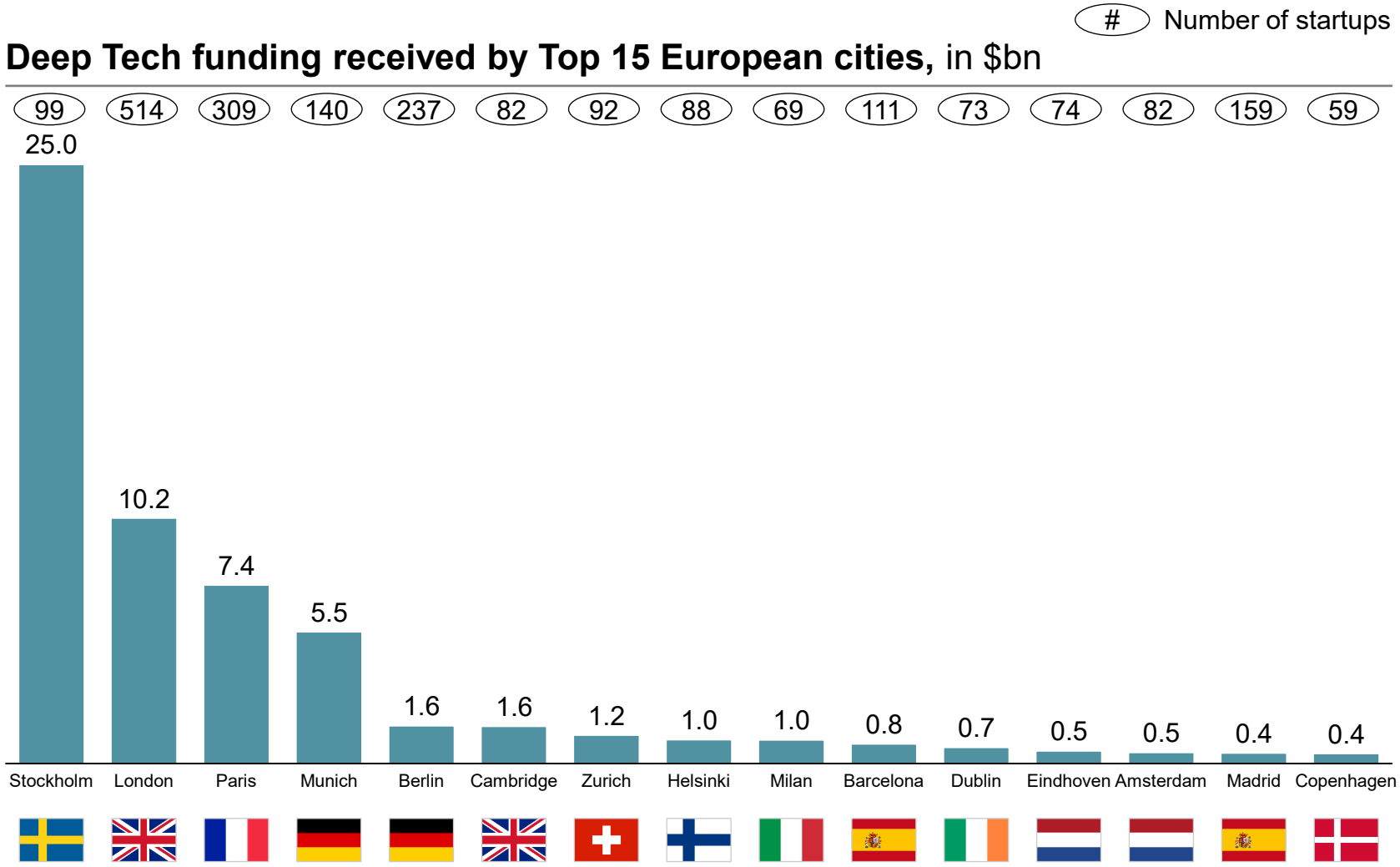
"The BeNeLux-Alpine-Berlin triad could become Europe's answer to the US coastal axis."

Prof. Dr. Isabell M. Welpe,
Professor, TUM

"Deep Tech startups are rarely founded in a garage anywhere in the country. Cutting-edge research, research infrastructure, and proximity to industry provide the fertile ground for many Deep Tech teams."

Gregor Haidl
Partner, HTGF

Stockholm's $25bn in funding from 99 startups makes it Europe's highest-impact Deep Tech city



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Insights

Stockholm achieves $252mn funding per startup versus London's $20mn, a ~13x gap that reframes the narrative: London wins on volume, but Stockholm wins on venture scale, reflecting a fundamentally different and arguably more commercially effective ecosystem model

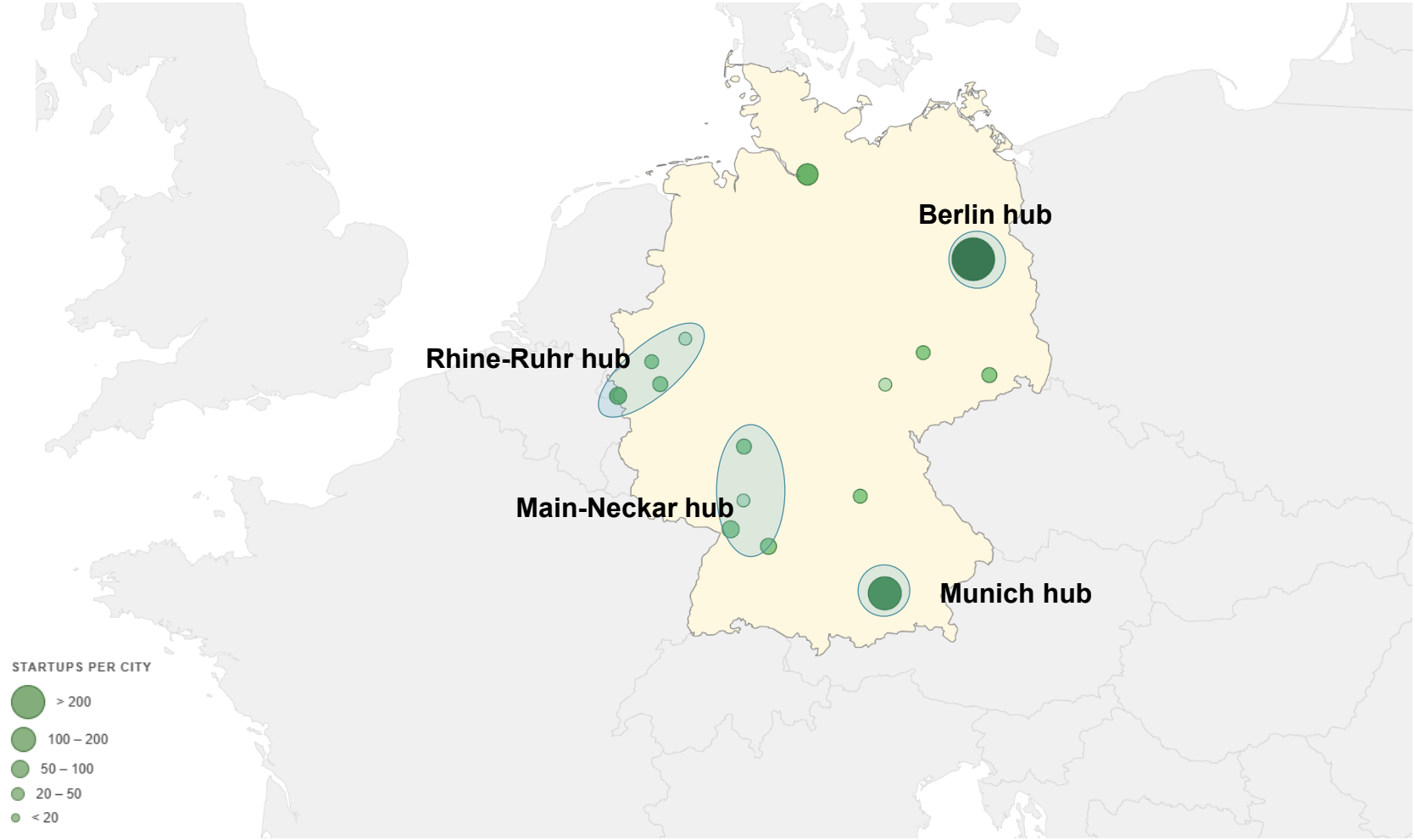
Cambridge ($1.6bn, 82 startups) outperforms Berlin ($1.6bn, 237 startups) on funding density by 3x, confirming that proximity to a world-class research creates higher-quality, more fundable startups

"Stockholm is Europe's north star ecosystem, driven by excellent technical universities with entrepreneurship programs, a mature ecosystem with notable exits in recent years, and a founder mindset building global products from day one."

Jannik Nolden
PhD Student, TUM

Berlin and Munich dominate Germany's Deep Tech landscape, while Rhine-Ruhr and Main-Neckar emerge

German HQ location of Deep Tech startups, in # of startups



Insights

The emergence of Rhine-Ruhr and Main-Neckar as hubs is strategically significant, as both regions sit at the intersection of industry and university research

"Munich, in particular, continues to stand out as a leading Deep Tech and industrial innovation hub, benefiting from its close ties to top-tier research institutions, global corporates and a highly active investor base. This combination makes it a key driver of high-quality, technology-driven venture activity in Germany."

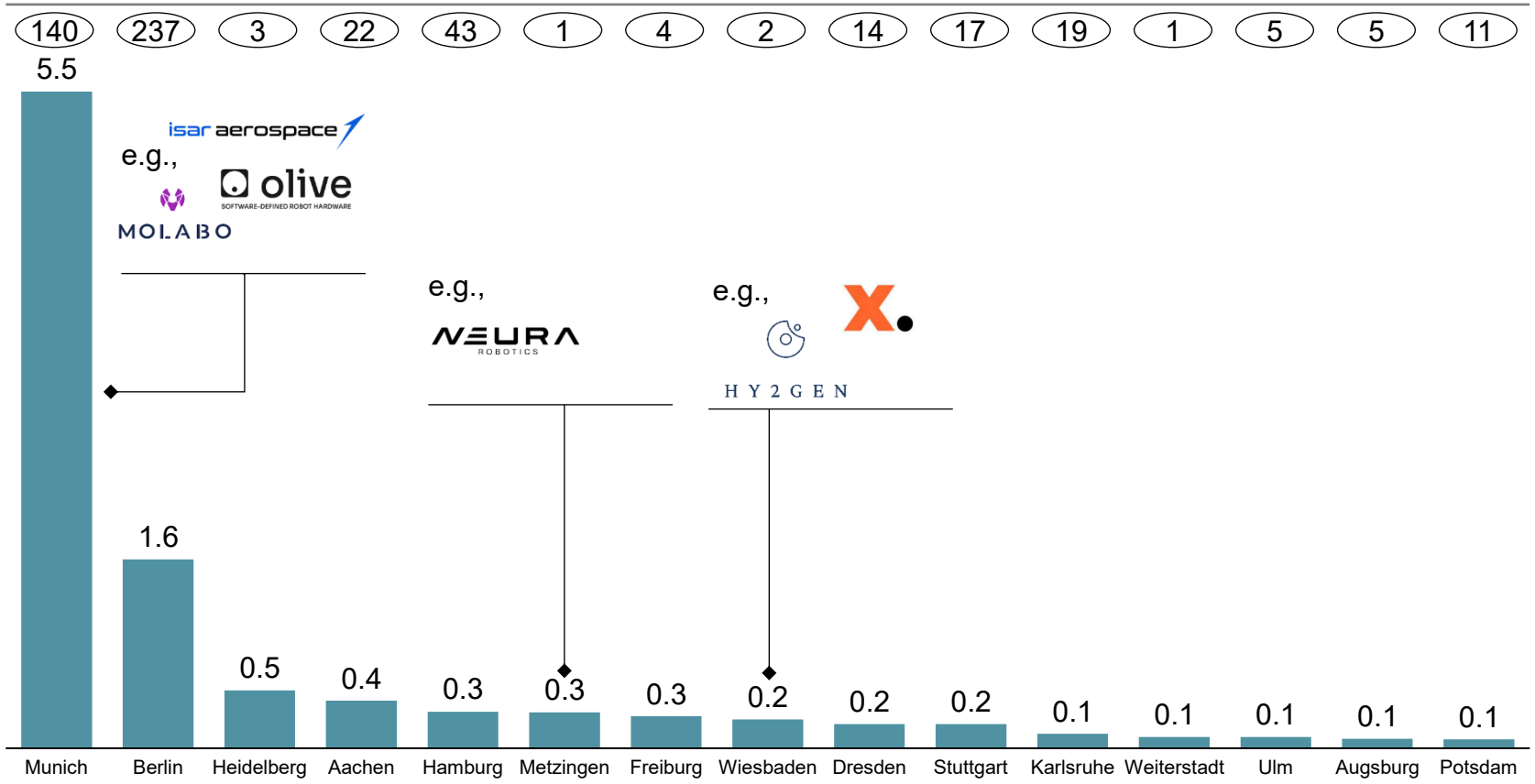
Dr. Mauritz von Einem
Partner, ARQIS

"The Greater Munich area is where Deep Tech turns into impact, driven by startups, industry leaders, and world class research."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

Munich's $39mn average funding per startup is ~6x Berlin's demonstrating the need for capital-intensity

Deep Tech funding received by Top 15 German cities, in $bn



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

~6x higher funding intensity in Munich compared to Berlin as Munich averages ~$39mn per startup versus ~$7mn in Berlin, despite having fewer startups

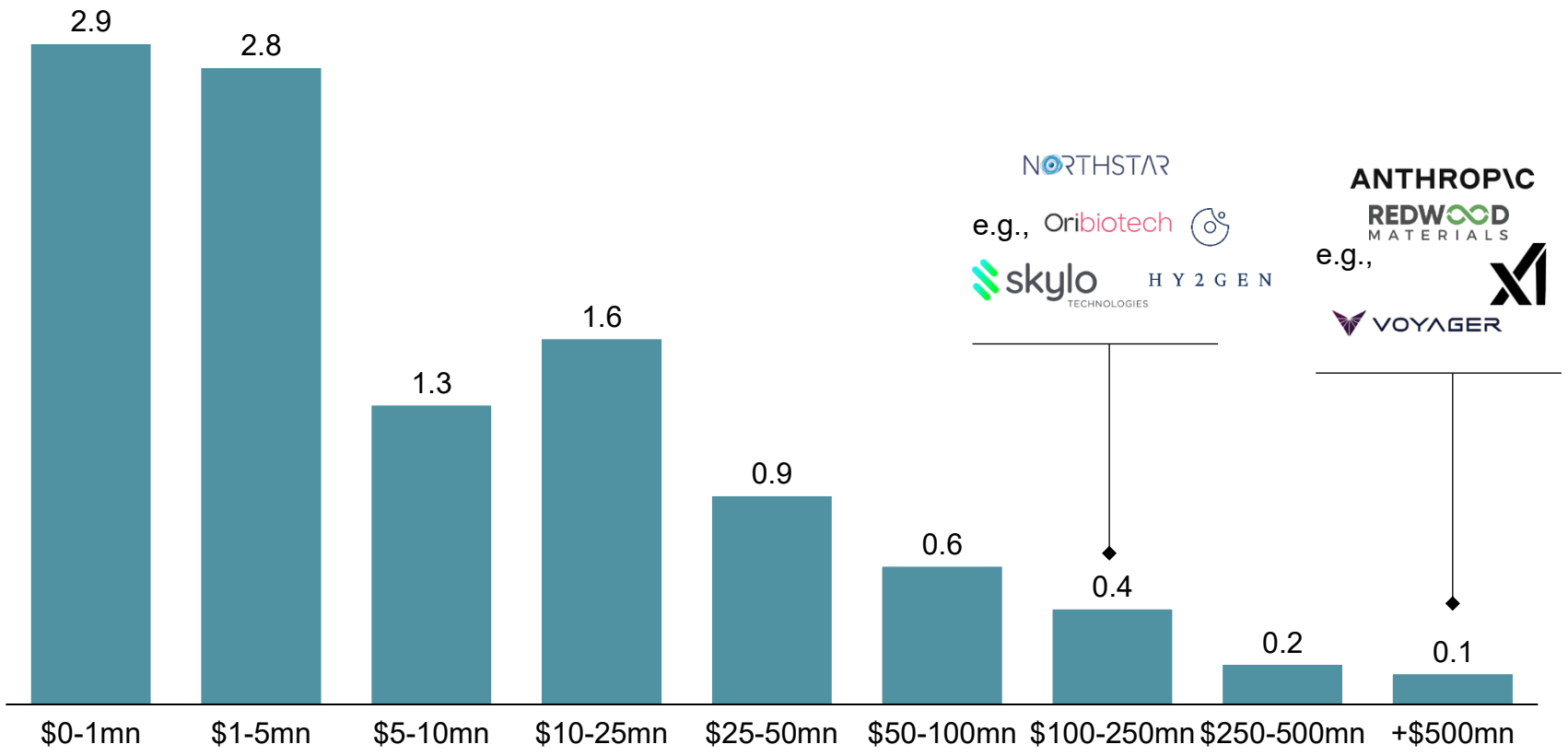
Munich's advantage is anchored in aerospace, automotive, and life science corporations that co-invest and provide commercial partnerships, a flywheel Berlin's consumer-internet heritage cannot easily replicate

"Funding intensity matters as much as funding volume, Munich's six-fold advantage over Berlin reflects a deeper integration of corporate partners, research institutions, and long-term capital that cannot be replicated through startup density alone."

Ariel Merabi Golan
Investment Director,
Bayern Kapital

53% of Deep Tech startups have raised under $5mn representing an opportunity for growth-stage investors

Count of Deep Tech startups per total raised capital, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

The $5-100mn funding corridor contains 4.4k startups (33% of the ecosystem), a cohort large enough to represent a structurally significant opportunity for growth-stage investors, yet currently underserved by both VC and institutional capital

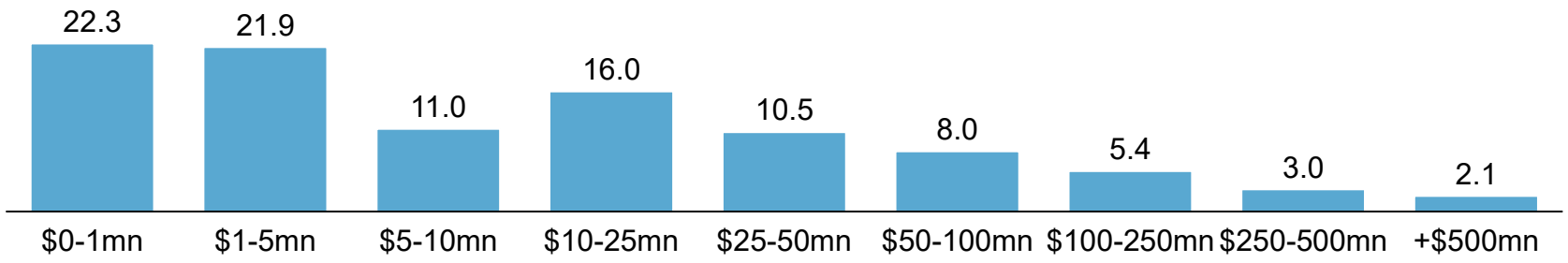
Only 0.3k startups (2%) have crossed the +$250mn threshold, confirming that the bottleneck is not at inception but at scale, the few companies that break through this barrier, demonstrate the outsized return potential

"This is consistent with the inherently long development cycles and capital intensity of these business models. The skew towards early-stage funding reflects both the pipeline nature of Deep Tech innovation and the higher barriers to scaling, including technological validation, regulatory requirements and market readiness."

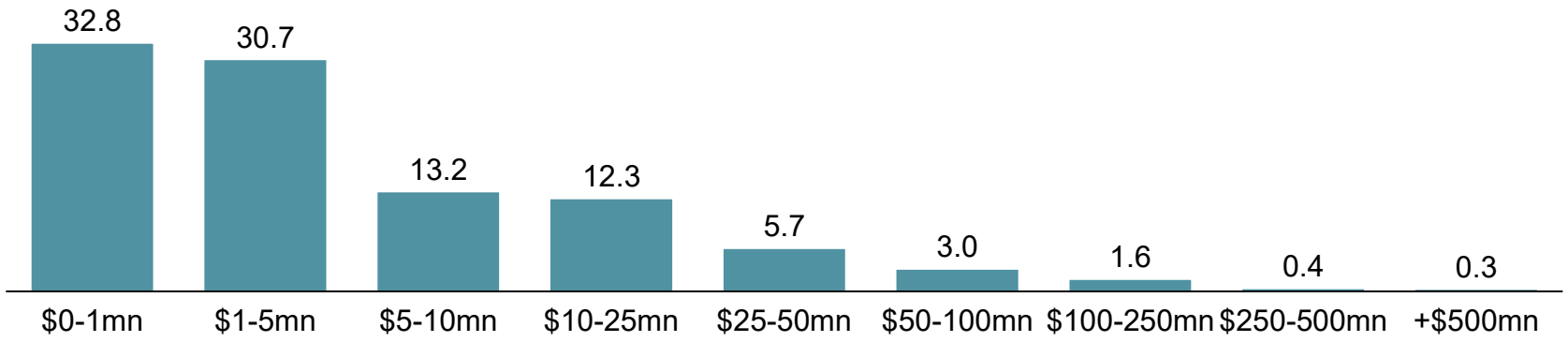
Dr. Mauritz von Einem
Partner, ARQIS

Closing the Series A/B financing cliff is the single highest-leverage capital intervention in European Deep Tech

North America count of Deep Tech startups per total raised capital $mn, in %



Europe count of Deep Tech startups per total raised capital $mn, in %



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Europe's 63.5% concentration below $5mn versus North America's 44.2% is not primarily a seed funding failure, Europe actually has robust early-stage infrastructure, but a Series A/B financing cliff that prevents its most promising cohort from reaching growth velocity

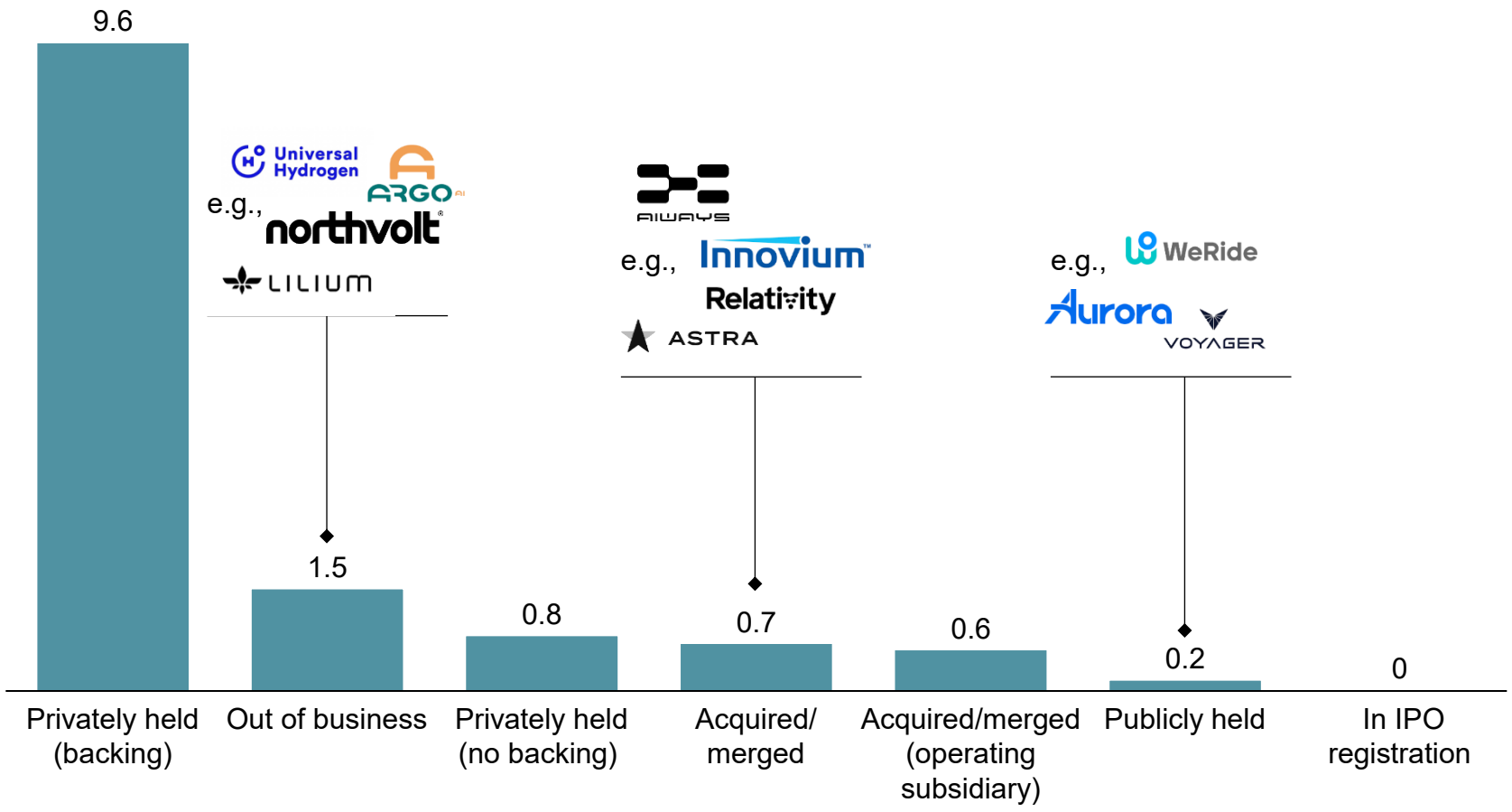
North America has a notably higher percentage of startups securing growth capital, especially in the $25-50mn and $50-100mn brackets, where its share of companies is nearly double that of Europe

"While early funding availability has improved through the increased political engagement in recent years, scaling Deep Tech companies still requires stronger access to large investment tickets. Here Europe has to close the gap and increase the attractiveness of the European capital and single market to scale."

Bernhard Eichiner LL.M.
Head of Department
Industry, Innovation, Consulting, IHK

Deep Tech is predominantly privately held, with limited exit conversion to public markets

Count of Deep Tech startups per ownership status, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

With 9.6k (~72%) privately-backed startups and only 0.2k publicly held, Deep Tech represents one of the largest concentrations of privately-held innovation value in any sector globally, the IPO pipeline alone, could reshape public market dynamics

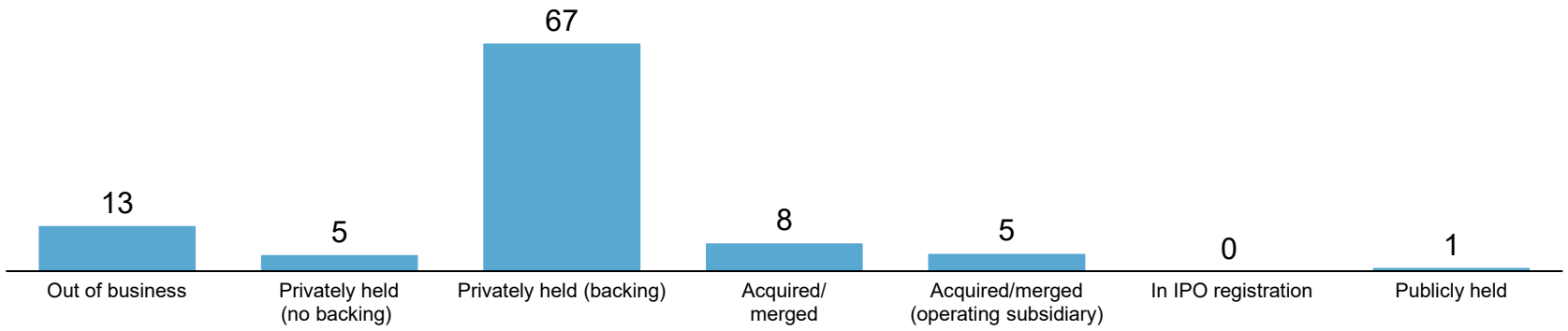
The 1.3k M&A exits (10% of the ecosystem) stand in sharp contrast to the 72% still privately held, suggesting that acquirers have not yet recognized the value of these assets

"Europe missed much of the consumer internet and software era. Deep Tech may be the first platform shift in decades where Europe can again build $100bn technology companies and reclaim a place among the world's most valuable stocks."

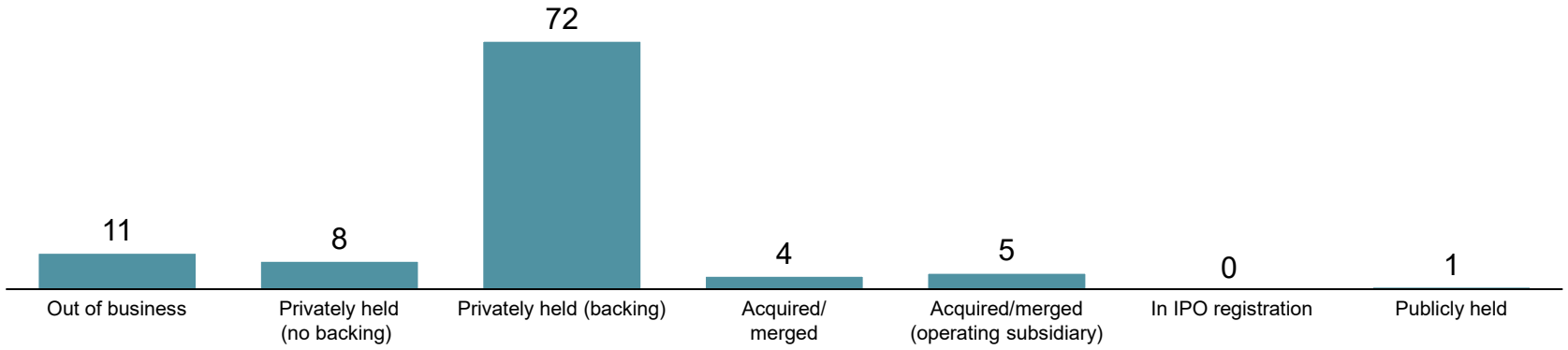
Jasmin Güngör
General Partner, Onsight Ventures

North America's 14% exit rate versus Europe's 10% signals a more efficient capital recycling engine

North America count of Deep Tech startups by ownership category, founded 2015-2025, in %



Europe count of Deep Tech startups by ownership category, founded 2015-2025, in %



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

North America's M&A rate is twice Europe's (8% vs. 4%), a gap that matters not just for investor returns but for ecosystem health, as each acquisition injects founder capital, talent, and networks back into the system in the way that Stockholm's cluster demonstrates at scale

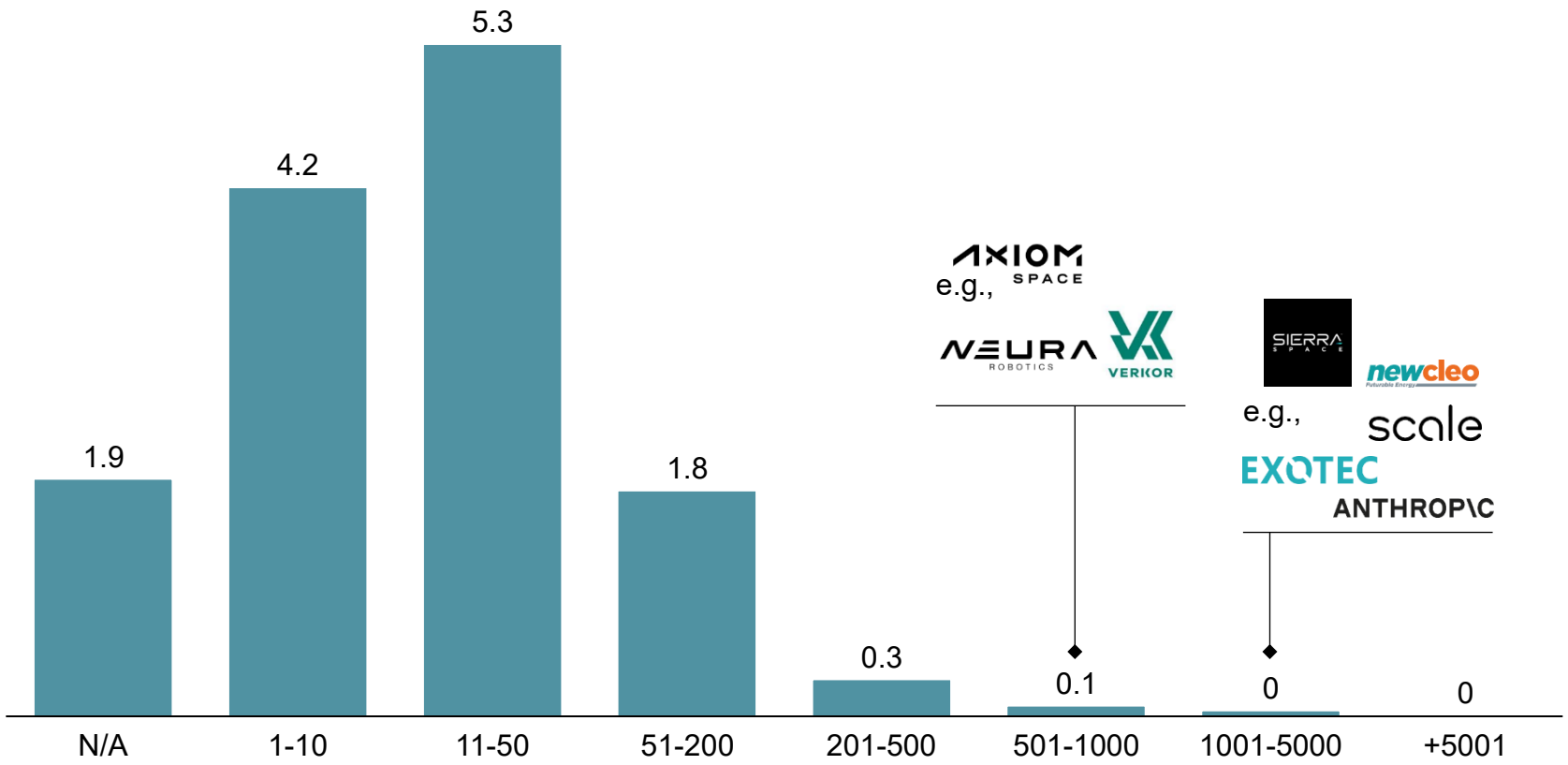
Europe's apparently stronger 89% survival rate versus North America's 87% is counterintuitively a warning sign, not a strength, it reflects not resilience but a lack of exit pathways

"According to the study IPOs by European Deep Tech startups are practically nonexistent. As a European ecosystem, we are striving to foster major European tech champions, which includes improving the conditions for Deep Tech IPOs."

Gregor Haidl
Partner, HTGF

39% of Deep Tech startups sit in the 11-50 employee 'early scaling' sweet spot

Count of Deep Tech startups per number of employees, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

The 11-50 employee cohort of 5.3k startups is the largest and most actionable segment in the entire Deep Tech ecosystem, these companies have de-risked their founding phase but have not yet attracted the institutional attention that drives up valuations, making them the optimal entry point for returns-focused investors

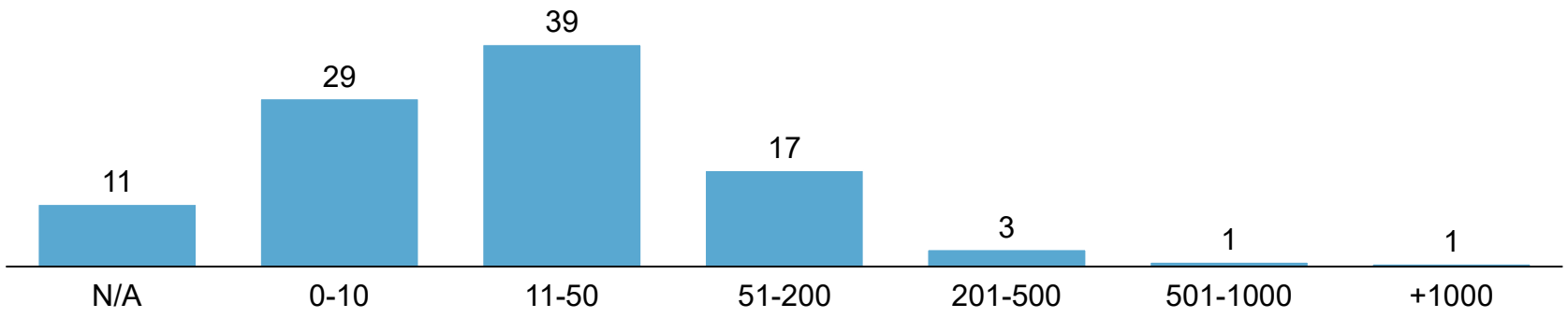
The near-zero presence above 500 employees (0.1k combined) confirms that Deep Tech has not yet entered its mass-employment phase, but this is a leading indicator of enormous future job creation potential, as the automotive and semiconductor sectors demonstrate

"70% under 50 employees, Deep Tech is not an employment engine in the classical sense, but a value-creation lever. A single successful company can transform an entire industry."

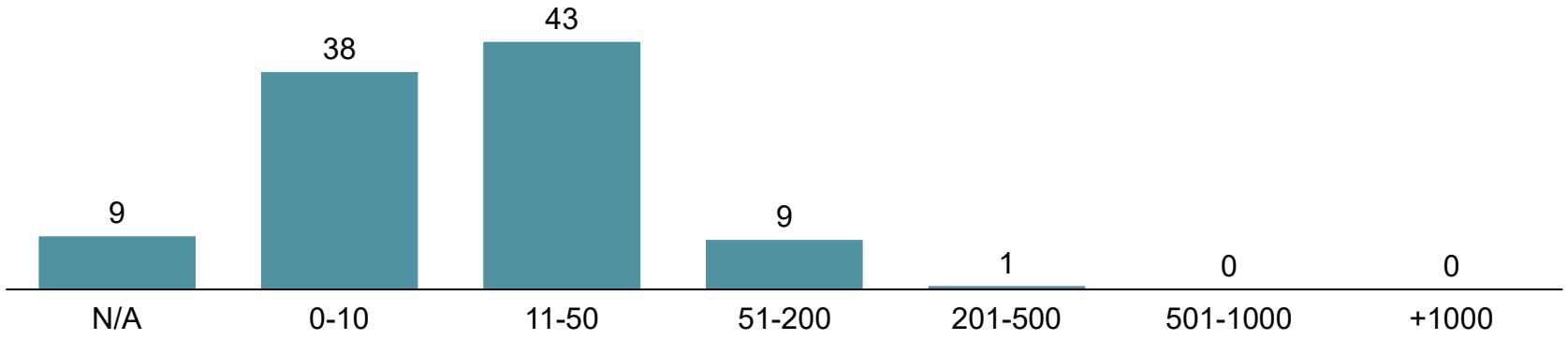
Prof. Dr. Isabell M. Welpe,
Professor, TUM

In Europe, a larger share of Deep Tech startups operate at a smaller employee scale and remain in earlier stages

North America count of Deep Tech startups per number of employees, in %



Europe count of Deep Tech startups per number of employees, in %



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Europe's 81% concentration at ≤50 employees versus North America's 68% represents a growth bottleneck worth quantifying, if Europe matched North America's distribution at the 51-200 bracket, it would add approximately 500 additional scale-up companies to the ecosystem, each capable of becoming a regional anchor employer and capital recycler

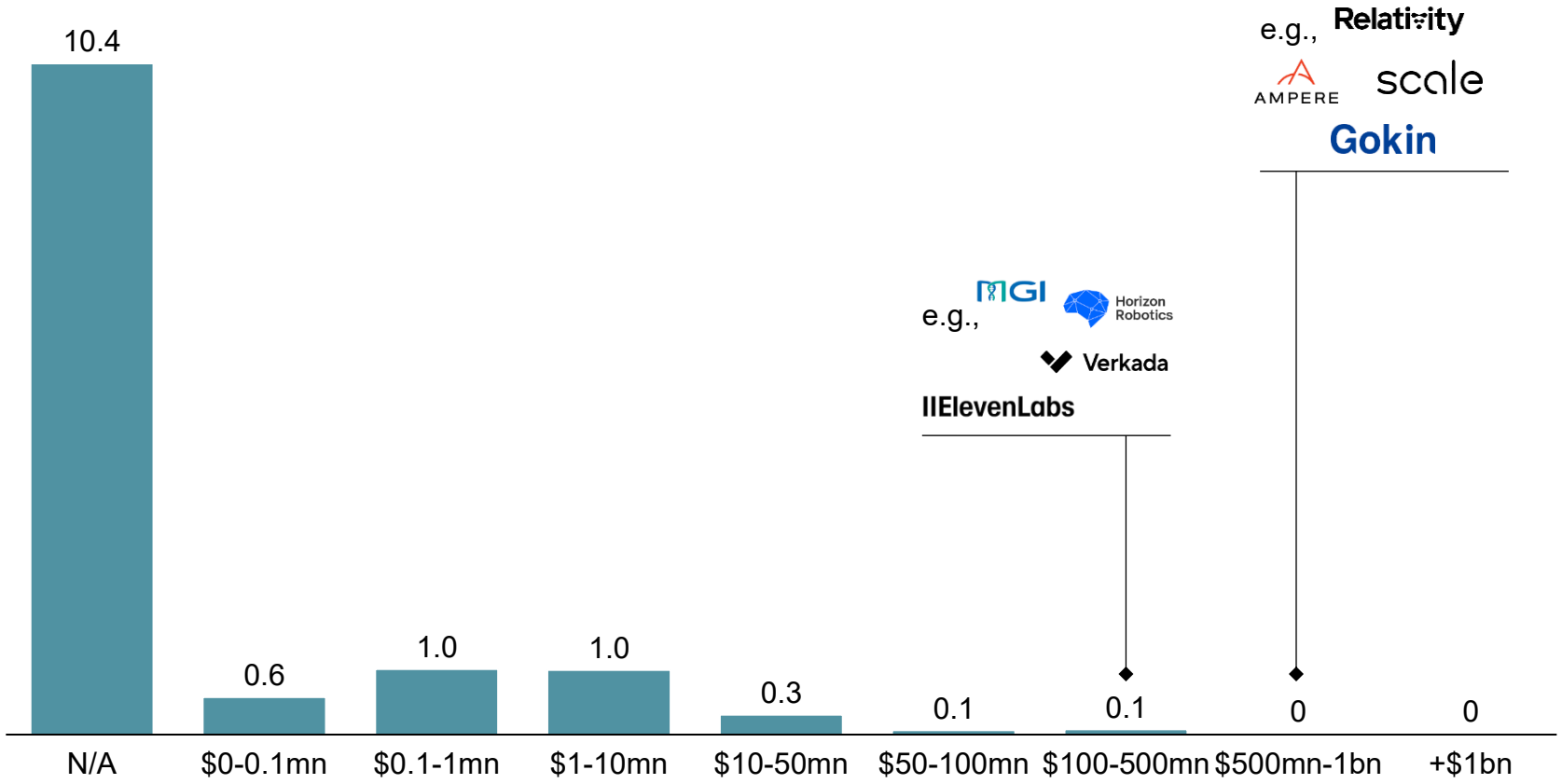
The 51-200 employee threshold is not arbitrary, it is the point at which Deep Tech startups transition from R&D-led to commercially-led

"Overall, the U.S. Deep Tech ecosystem is already more mature and better developed. In Europe, the ecosystem is still in an earlier stage, but this also underscores the potential of EU Deep Tech from an investor's perspective."

Gregor Haidl
Partner, HTGF

77% of Deep Tech startups have no reported revenue

Count of Deep Tech startups per revenue category, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Revenue visibility is limited across the ecosystem as 10.4k out of 13.6k startups (~77%) report N/A revenue, indicating technology development stages before commercialization

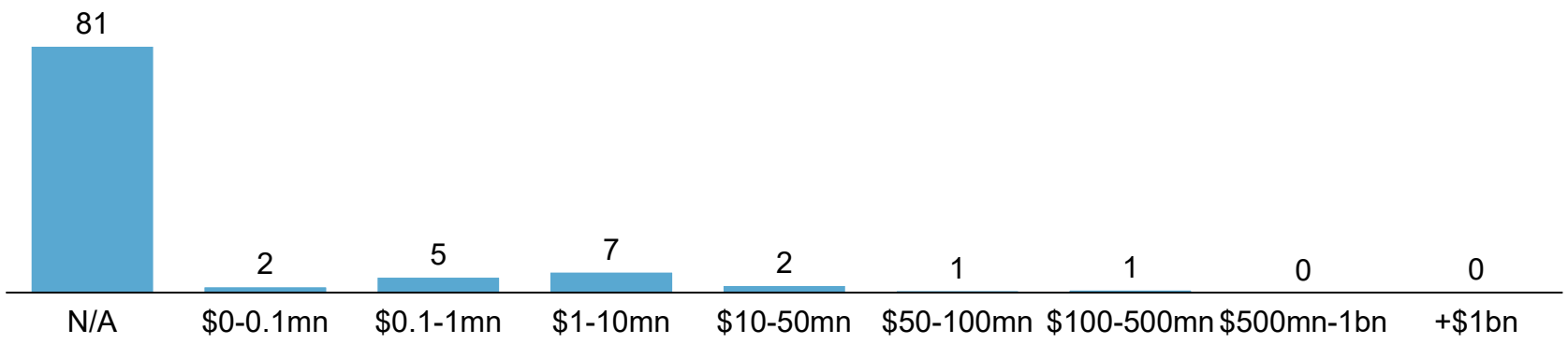
Scale revenues (+$50mn) are rare (<2%), with few Deep Tech startups exceeding $500mn+

"As investors, we should know whether a company is a true moonshot requiring long development cycles and heavy capital, like quantum computing, or a Deep Tech company capable of generating early revenues and faster exits. Both models can create exceptional outcomes."

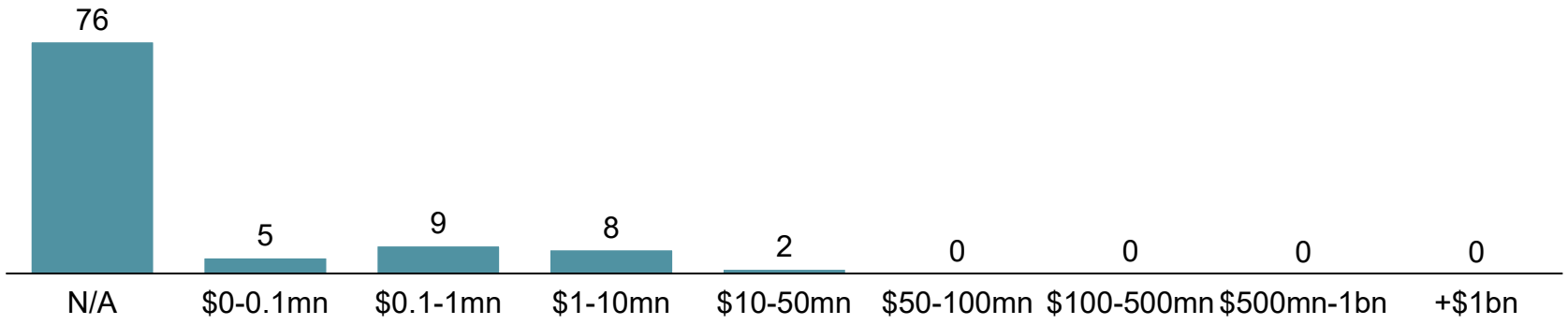
Jasmin Güngör
General Partner, Onsight Ventures

North America's Deep Tech ecosystem matures faster, while Europe's startup base signals future potential

North America count of Deep Tech startups per revenue category, in %



Europe count of Deep Tech startups per revenue category, in %



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

The share of companies with revenue up to $10mn is 22% in Europe, significantly outpacing North America's 14%

"Commercialization gap" emerges at scale: North America demonstrates clear superiority in scaling companies to high revenue levels

"Too often, Europe acts as a nursery for other global power centers: we grow the technology, others capture the value. We need to retain more of that value for ourselves and our societies."

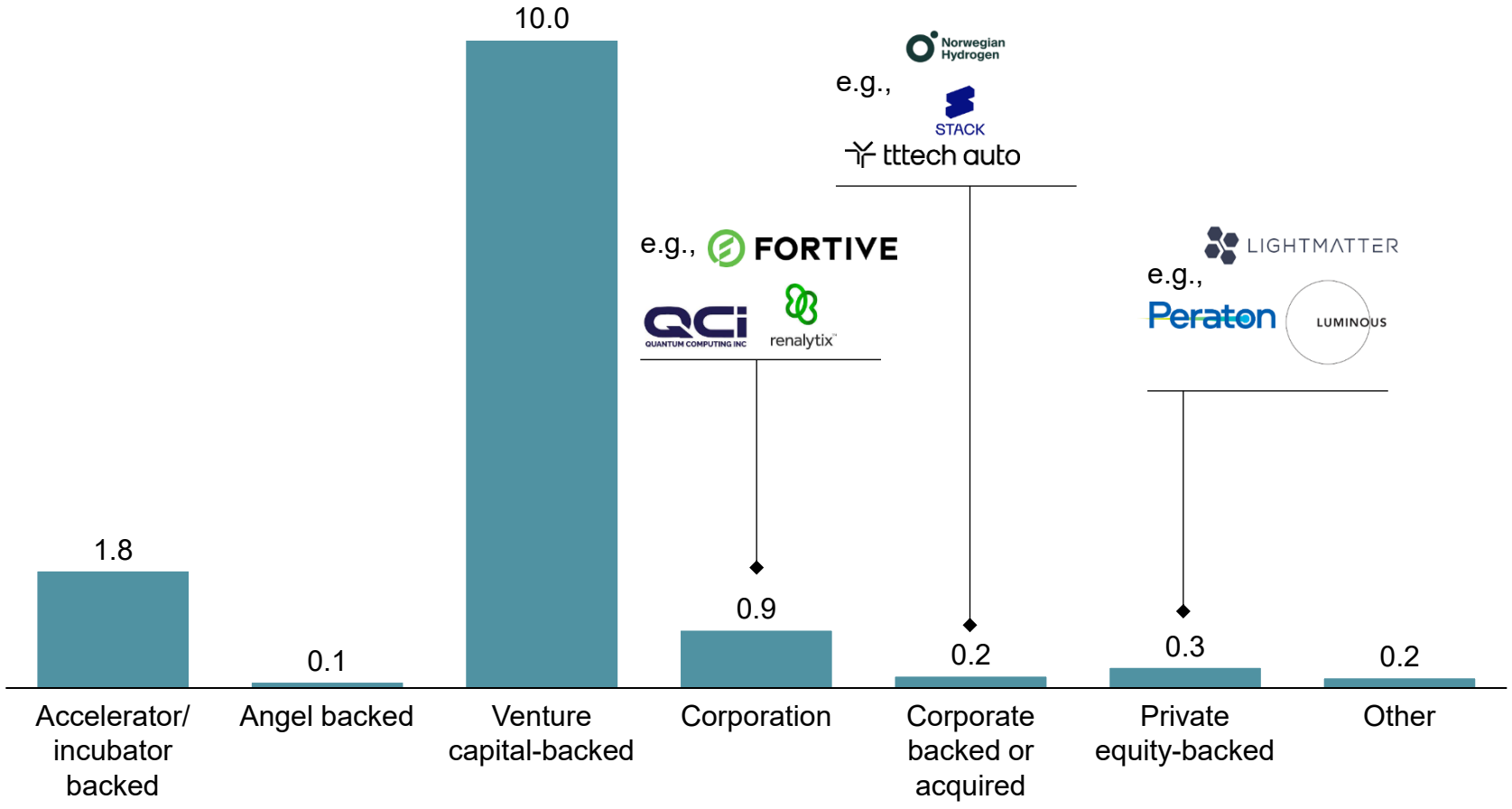
Jasmin Güngör
General Partner, Onsight Ventures

"Europe has a strong foundation of Deep Tech startups but scale-up capital and European lead investors in the growth stage remain scarce."

Gregor Haidl
Partner, HTGF

74% VC backing across 10k Deep Tech startups confirms robust private market conviction

Count of Deep Tech startups financing status, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

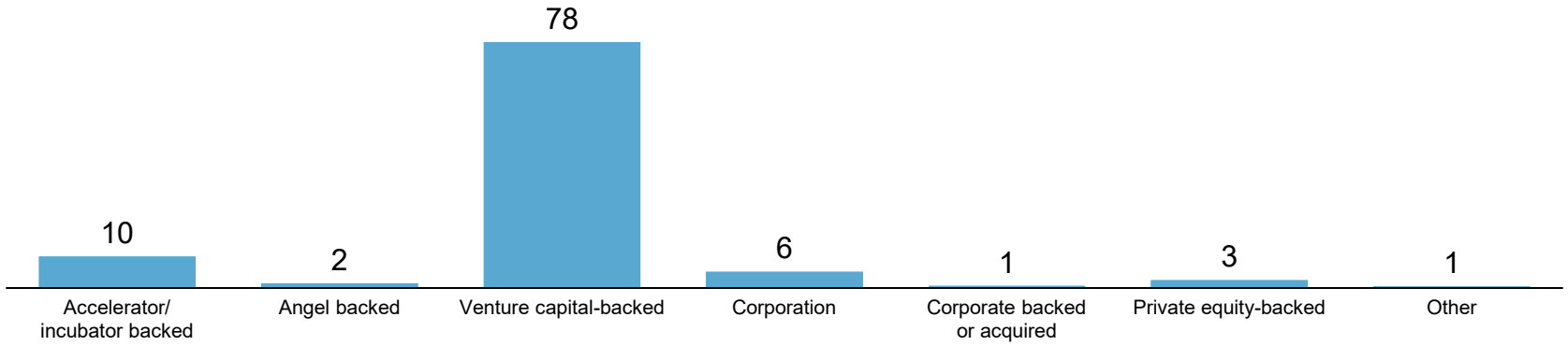
Corporate involvement at just 8% (1.1k startups) is striking given that Deep Tech innovation is most relevant to incumbent industrial sectors like automotive, aerospace, pharma, and energy, companies in these industries that build systematic CVC and partnership programs now will capture innovation optionality at a fraction of the cost of in-house R&D

"The current dominance of VC funding reflects the early to growth-stage nature of many Deep Tech ventures, where flexibility, risk tolerance and long-term capital commitment are essential. Corporate participation is likely to increase as technologies mature and move closer to commercial scale, particularly in areas where industrial players seek access to innovation through partnerships, minority investments or acquisitions."

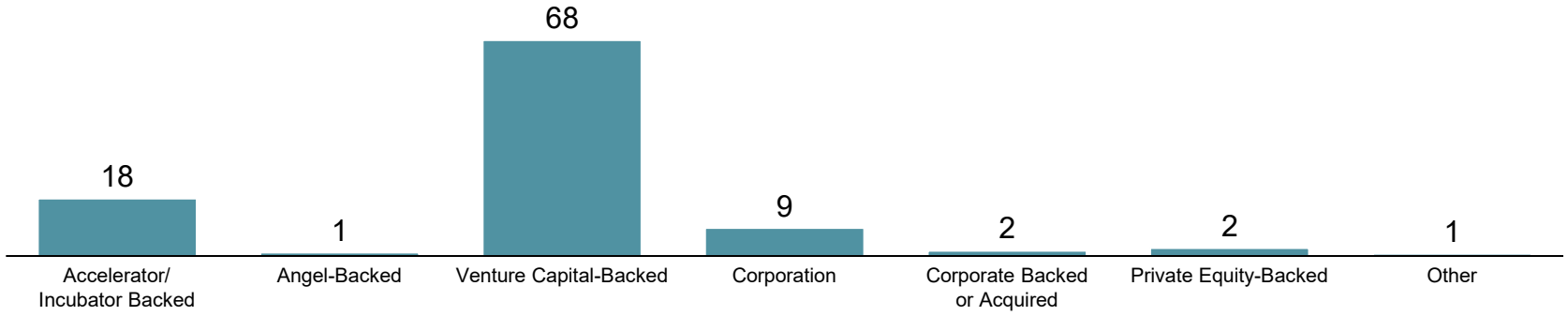
Dr. Mauritz von Einem
Partner, ARQIS

Europe's 68% VC penetration highlights an urgent need for private capital to scale early-stage success

North America count of Deep Tech startups per funding category, in %



Europe count of Deep Tech startups per funding category, in %



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Europe's 18% accelerator/incubator share versus North America's 10% demonstrates that public and institutional early-stage support is working as designed, the policy challenge now shifts from 'how do we start more Deep Tech companies' to 'how do we ensure private VC takes over before institutional dependency becomes a structural crutch that crowds out market-rate capital

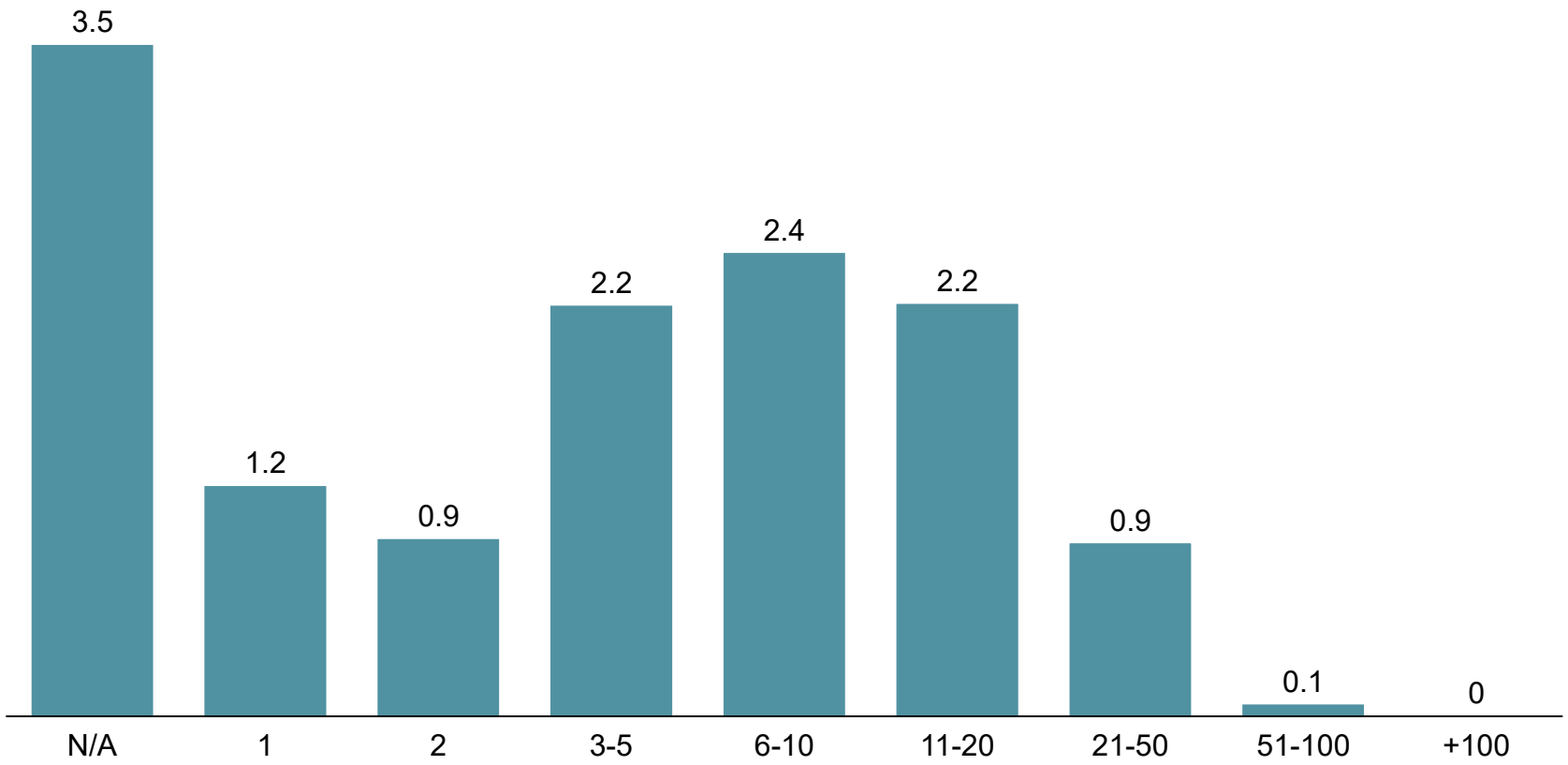
Europe requires not more government programs but the deliberate cultivation of 20-30 large-ticket European Deep Tech VC funds capable of leading $50-200mn rounds

"Europe's strong institutional early-stage support play a valuable role in bridging the first 'valley of death' startups are facing but long-term scale-up success ultimately depends on attracting sufficient private capital and not by crowding out private VC."

Bernhard Eichiner LL.M.
Head of Department
Industry, Innovation, Consulting, IHK

Deep Tech cap tables are moderately concentrated, with limited broad investor syndication

Count of Deep Tech startups of number of investors, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Mid-sized syndicates (6-20 investors) house 4.6k startups, indicating the market has converged on this as the de-facto funding structure for credible Deep Tech deal

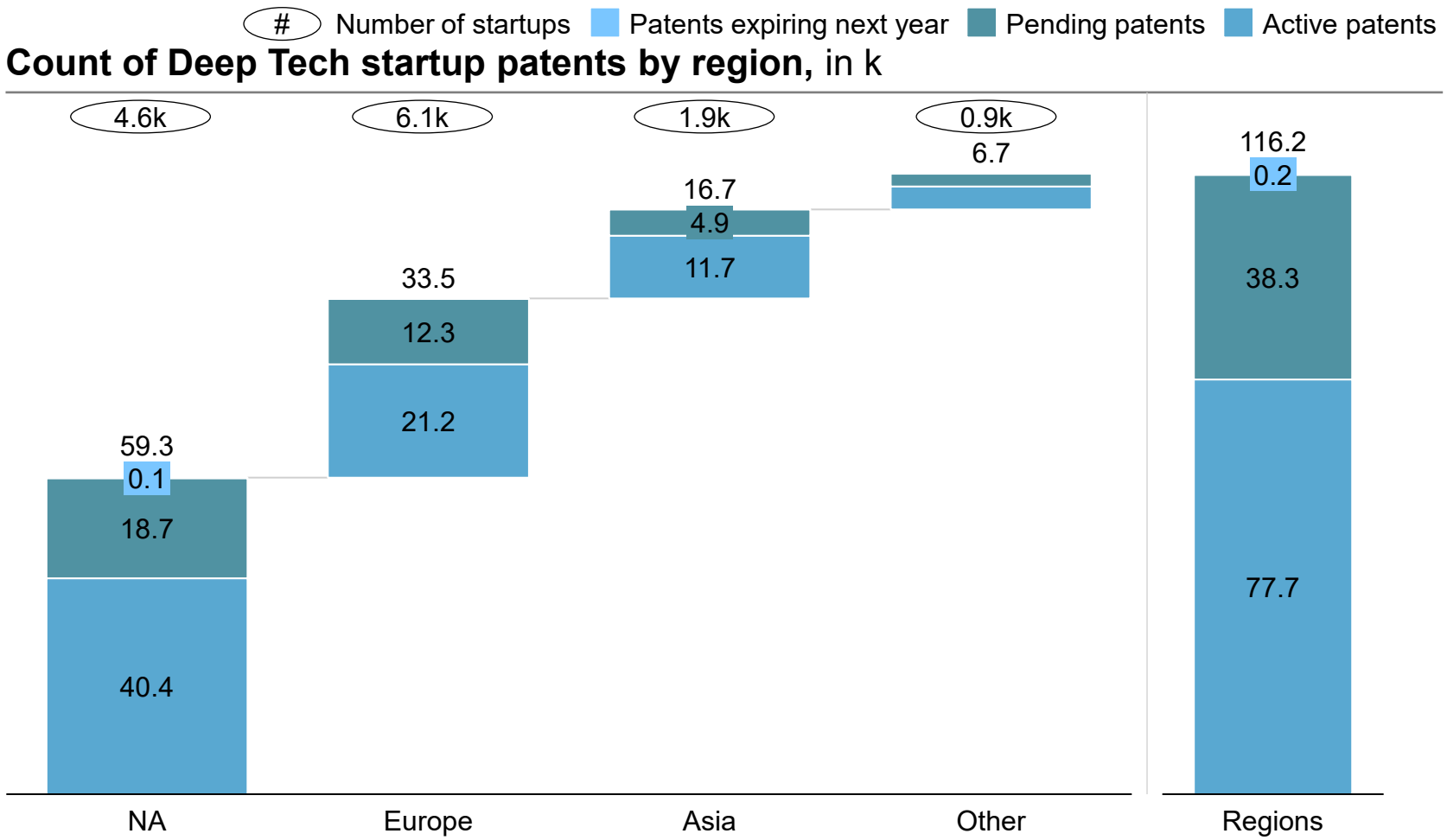
"Europe's challenge is not access to science, but the ability to concentrate enough coordinated long-term capital behind its best companies. As frontier technologies increasingly exceed the capacity of most individual European investors, larger syndicates become a natural consequence."

Jasmin Güngör
General Partner, Onsight Ventures

"Most Deep Tech startups rely on small investor syndicates, yet solo-backed companies face structural follow-on gaps that limit their scaling potential and increase ecosystem fragility."

Ariel Merabi Golan
Investment Director, Bayern Kapital

North America leads in Deep Tech patent intensity



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

North America accounts for ~51% of total patents with only ~34% of startups

Europe hosts the largest number of startups but generates only ~29% of total patents, signaling lower IP density

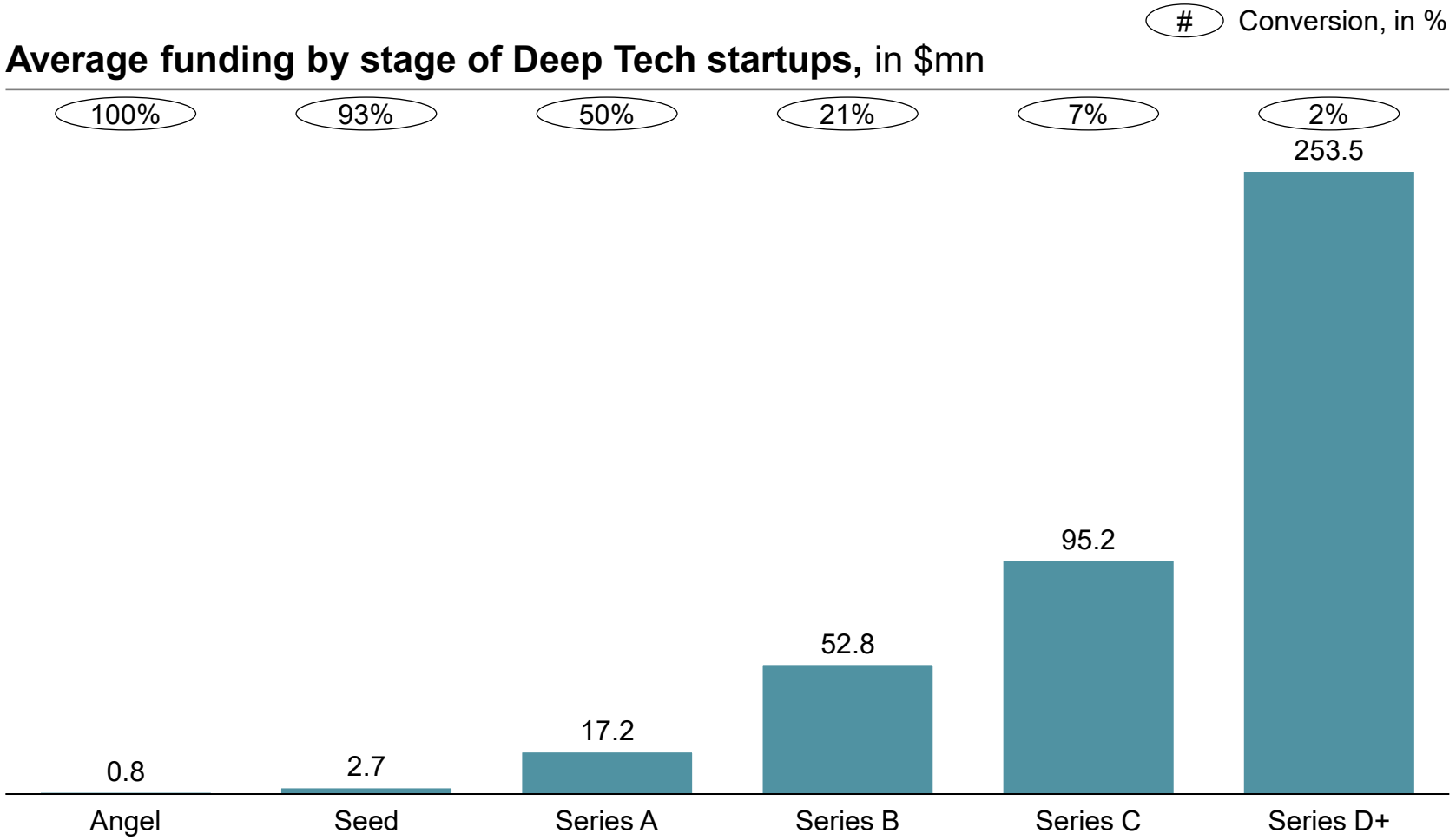
"While Europe generates strong research output, converting IP into patents and market-ready technologies remains complex."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

"Efforts in recent years to streamline the transfer of IP from European research institutions to Deep Tech startups could continue to have a positive impact on the patent intensity of European Deep Tech startups."

Gregor Haidl
Partner, HTGF

Deep Tech funding scales exponentially by stage, with capital sharply concentrated in late-stage rounds



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

While most (93%) angel-backed companies secure a seed round, only half (50%) of those successfully raise a Series A, the conversion rate then plummets, with only 7% of Series B companies making it to Series C

"The ability to build and lead high-quality investor syndicates is becoming a key success factor, especially in Europe, where scaling capital remains fragmented."

Dr. Anne Hinze
Investment Manager, DTCF

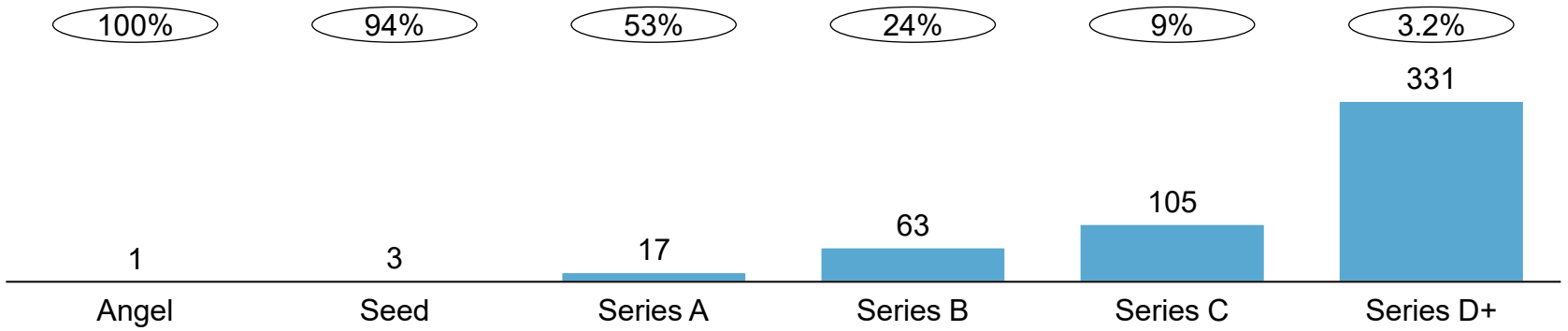
"The breadth and depth of North America's investor base underpin its scale-up success, underscoring the need for Europe to decisively expand the pool of active growth-stage investors."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

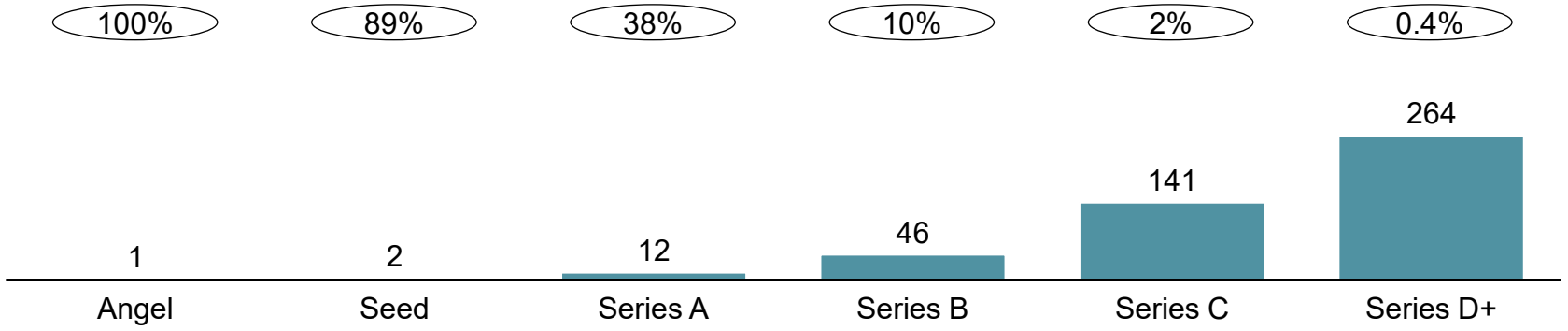
Funding rounds are comparable in size, however, the conversion rate in North America is higher than in Europe

(#) Conversion rate to funding round, in %

North America average funding by stage of Deep Tech startups, in $mn



Europe average funding by stage of Deep Tech startups, in $mn



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

While funding round sizes are comparable at each stage, North America's Deep Tech startups are significantly more successful at advancing to the next level

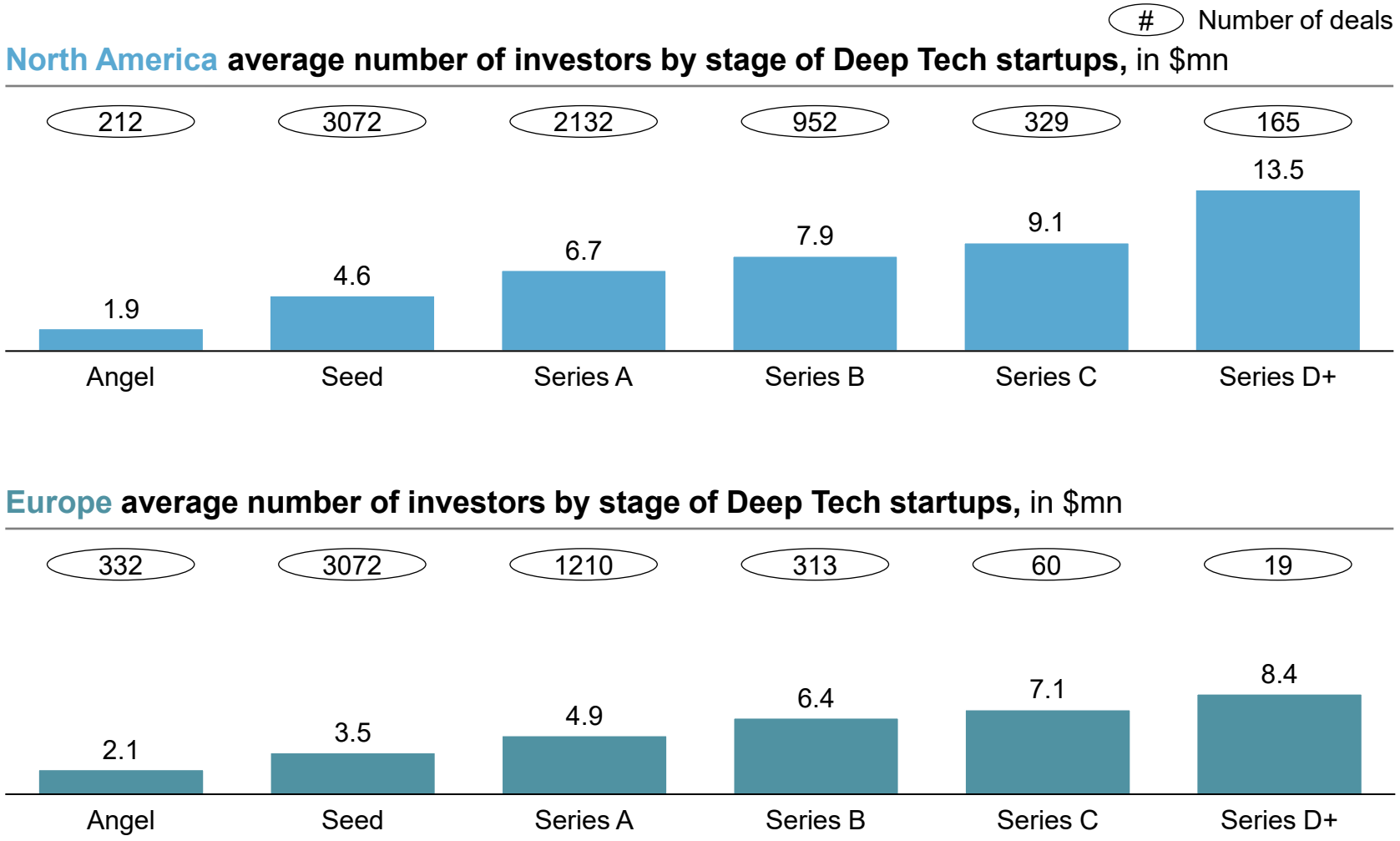
The conversion rate from Series A to Series B is more than double that of Europe (24% vs. 10%)

While the success of SaaS giants like Spotify proves that Series D scaling is achievable within the European ecosystem, the scarcity of late-stage rounds may not merely indicate a funding gap, but rather a lag in scaling maturity

"Europe doesn't have a Deep Tech problem, it has a scale-up problem. Solving it requires stronger ecosystems that connect capital, industry, and global networks."

Tom Villinger
CEO, D11Z. Ventures

Leveraging more investors to maximize total funding in North American rounds



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

North American startups attract a significantly larger syndicate of investors per deal from Series A onwards, a gap that is most pronounced at the Series D+ stage where they average 13.5 investors compared to Europe's 8.4

"Europe's bottleneck is not early-stage support, it is the lack of growth-stage investors capable of leading and syndicating large rounds, a structural gap that drives the most capital-intensive Deep Tech companies to seek funding abroad."

Ariel Merabi Golan
Investment Director,
Bayern Kapital

"In Europe, there are still too few European growth investors capable of leading growth rounds, setting terms, and building consortia."

Gregor Haidl
Partner, HTGF

Grouping Deep Tech startups into sub-industries by identifying clusters of words that commonly appear together in startup taglines and descriptions

Advanced Materials & Nano-technology

Foodtech & Agtech

Medtech & Biotechnology

Mobility & Aviation

Novel AI

Novel Energy & Energy Storage

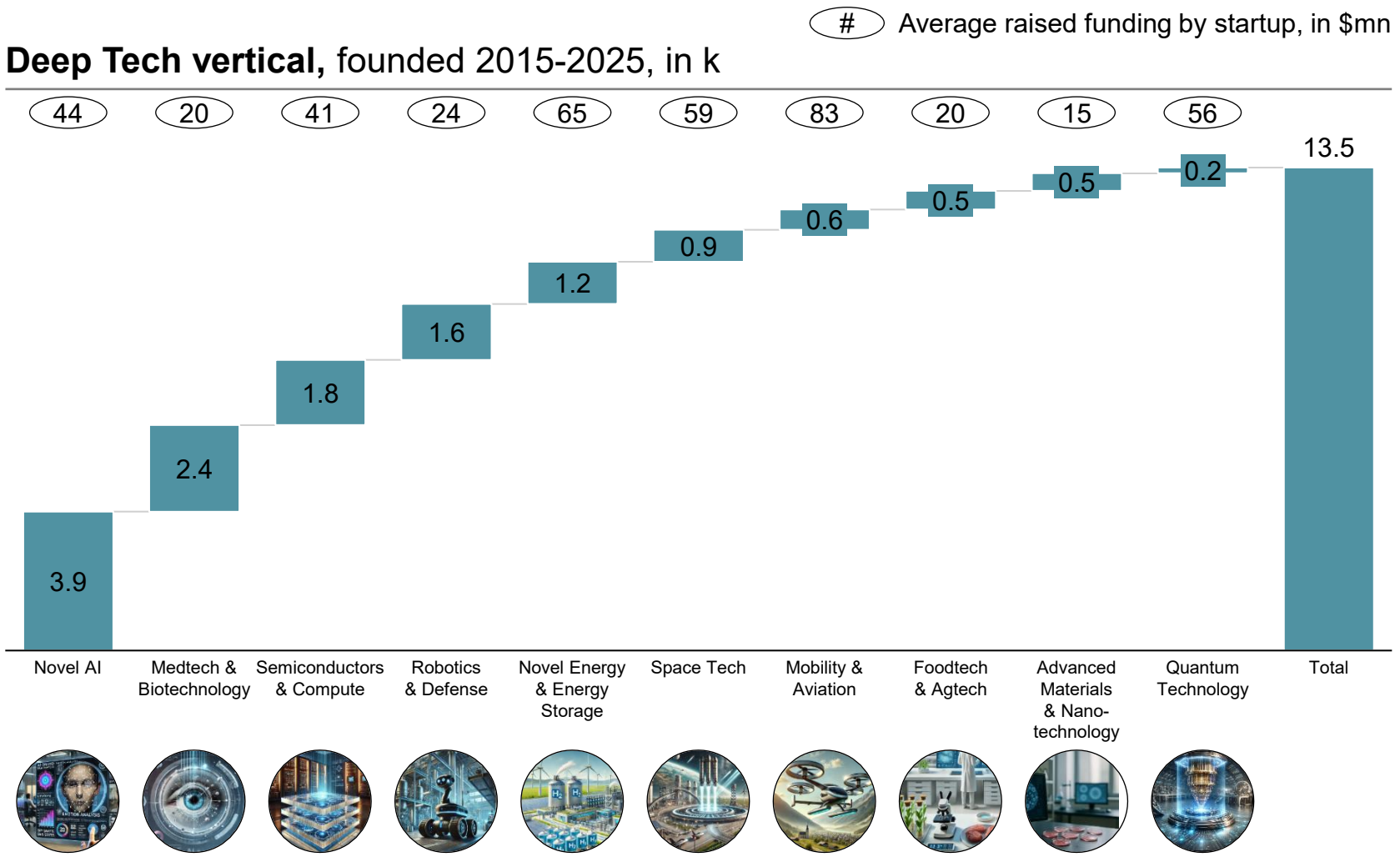
Quantum Technology

Robotics & Defense

Semiconductors & Compute

Space Tech

Top 3 Deep Tech sub-industries are Novel AI, Medtech & Biotech and Semiconductors & Compute



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

Novel AI leads with 3.9k startups and $44mn average funding, nearly double Semiconductors & Compute ($41mn), confirming AI infrastructure as the highest-return density segment in Deep Tech right now

Medtech & Biotech is 2.4k strong but averages only $20mn, signaling high startup volume with fragmented capital, a structural opportunity for consolidators or specialist funds willing to back fewer, larger bets

Quantum Technology has the fewest startups (0.2k) yet $56mn average funding, indicating a winner-takes-most dynamic, early positioning is critical as the market is still forming

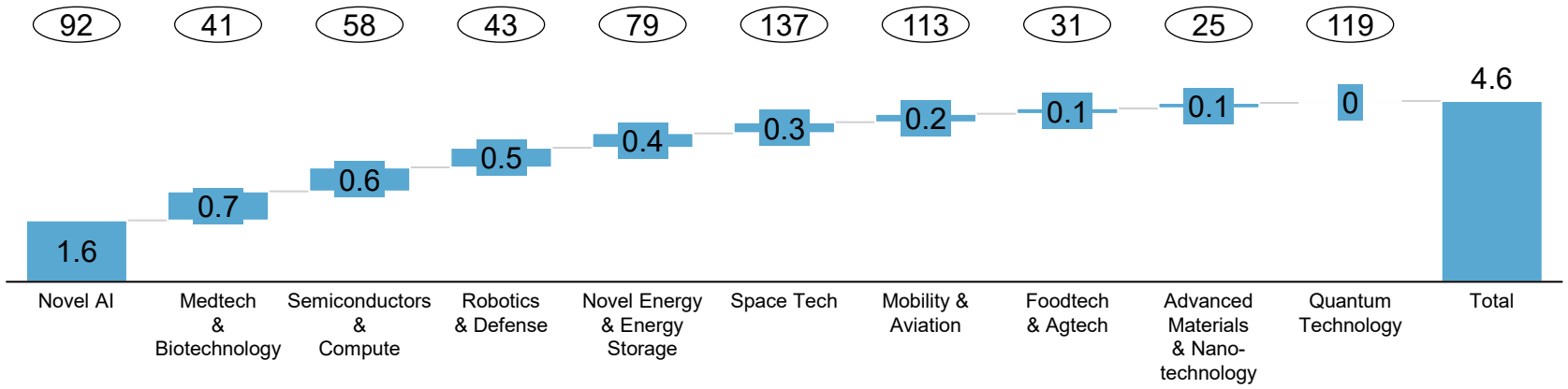
"The real value in AI won't be in models alone, but in the infrastructure and systems that make them reliable at scale."

Tom Villinger
CEO, D11Z. Ventures

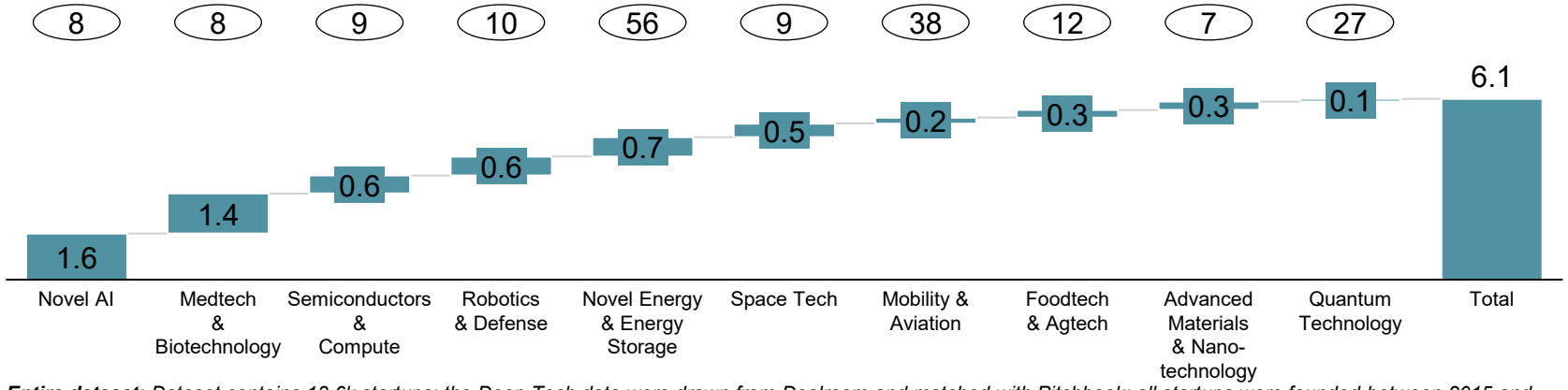
Average funding per startup across sub-industries is higher in North America

(#) Average raised funding by startup, in $mn

North America Deep Tech vertical, founded 2015-2025, in k



Europe Deep Tech vertical, founded 2015-2025, in k



Entire dataset: *Dataset contains 13.6k startups; the Deep Tech data were drawn from Dealroom and matched with Pitchbook; all startups were founded between 2015 and 2024 and received +$100k total funding.*

Insights

European Deep Tech startups have a lower average funding per Deep Tech industry, compared to North America

North America's success in Deep Tech is heavily driven by AI, which relies on vast data availability

Europe's strength is in sectors like Energy, Biotech/MedTech, and Quantum, where success is driven by engineering excellence rather than data scale

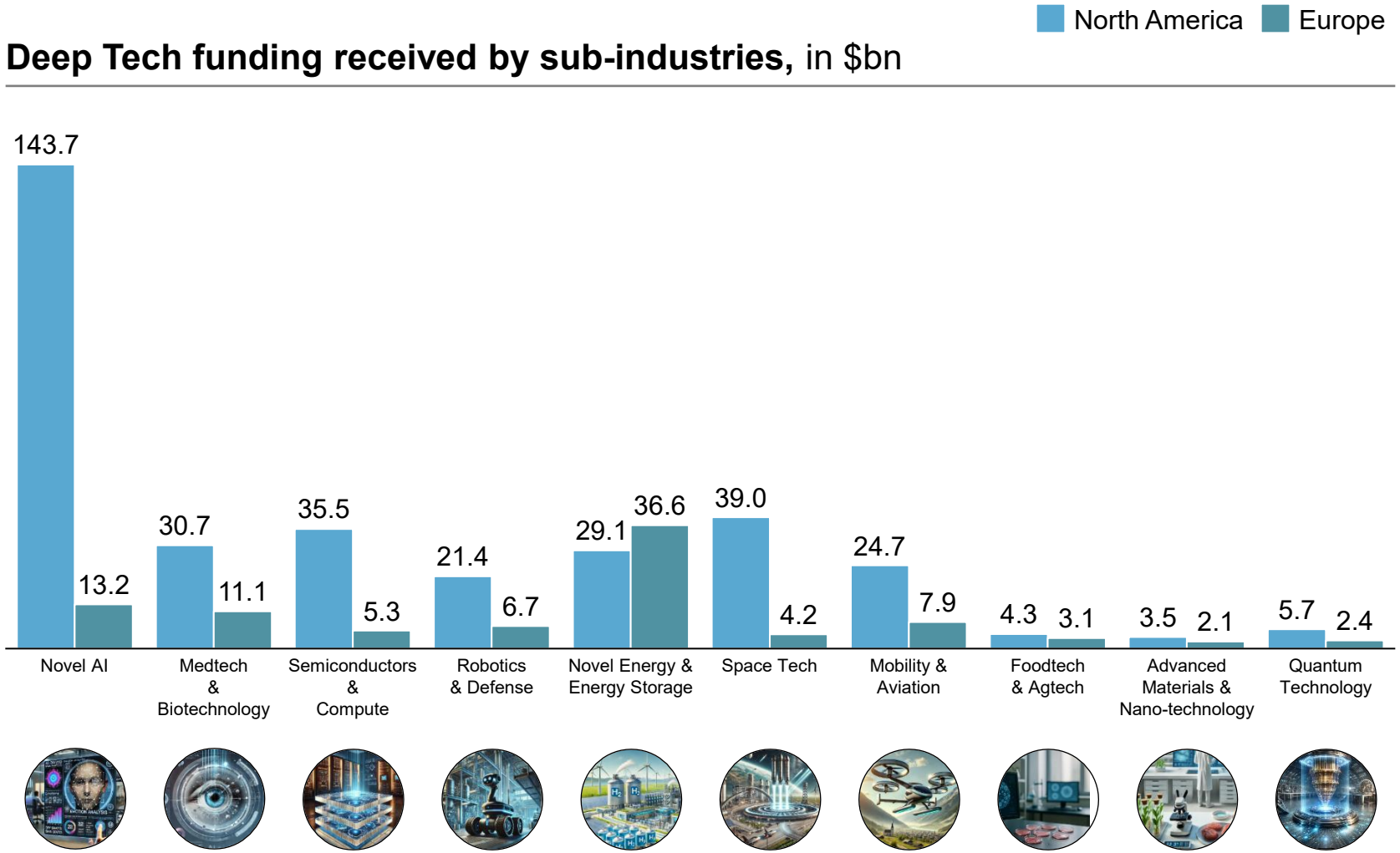
Europe may appear less mature in certain market-ready applications (e.g., AI), but it holds a stronger position in foundational technologies that are still navigating early development cycles

"Resilience technologies will define the next decade of Deep Tech, from cybersecurity to defense and critical infrastructure."

Tom Villinger
CEO, D11Z. Ventures

Europe must urgently convert its energy and engineering edge into AI-competitive capital pools

Deep Tech funding received by sub-industries, in $bn



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Insights

North America's $143.7bn in Novel AI funding alone exceeds Europe's total Deep Tech funding across all categories, representing a compounding structural disadvantage, Europe risks falling permanently behind in the sector that will define the next tech cycle

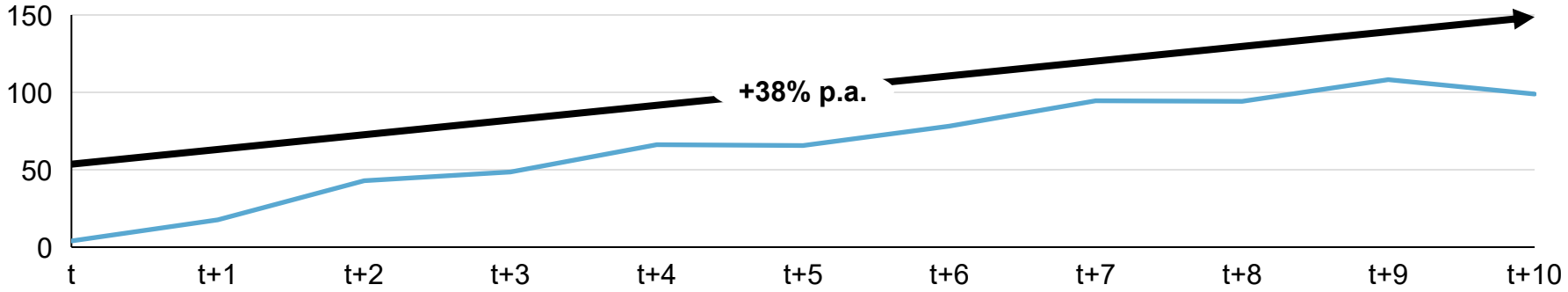
Europe leads in Novel Energy & Energy Storage ($36.6bn vs. $29.1bn), its only category advantage, a strategic asset tied to the energy transition that European policymakers and funds should aggressively double down on

"Europe's historical strengths in Deep Tech fields such as engineering, quantum technologies, and medtech offer significant innovation potential, provided they are consistently translated into scalable ventures."

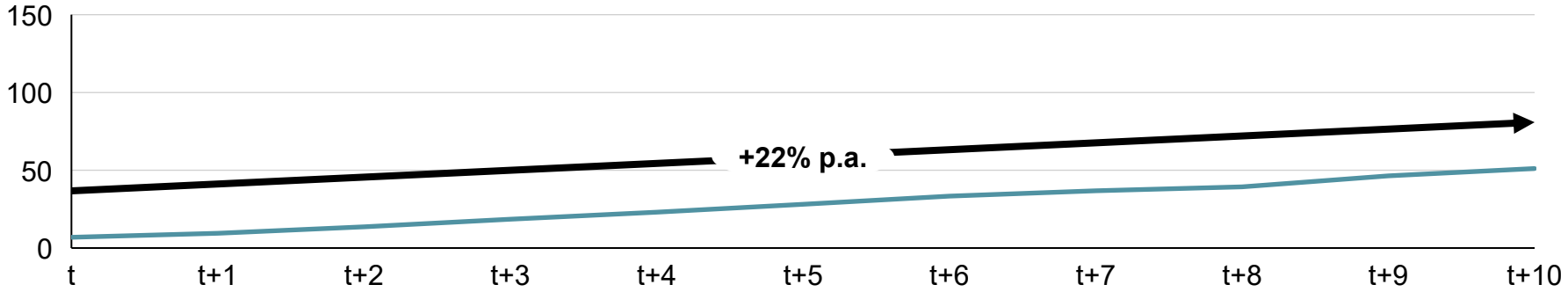
Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

North America scales 1.7× than Europe, compounding the Series A/B gap into a structural execution gap

North America average employees development, by region and year after founding



Europe average employees development, by region and year after founding



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Insights

North American startups grow 1.7× faster (+38% vs. +22% p.a.)

"The stronger scaling dynamics in the US are not surprising. The strongest technology ecosystems become self-reinforcing over time: employees become founders, founders become investors and each generation compounds the next. The US started building these feedback loops decades earlier."

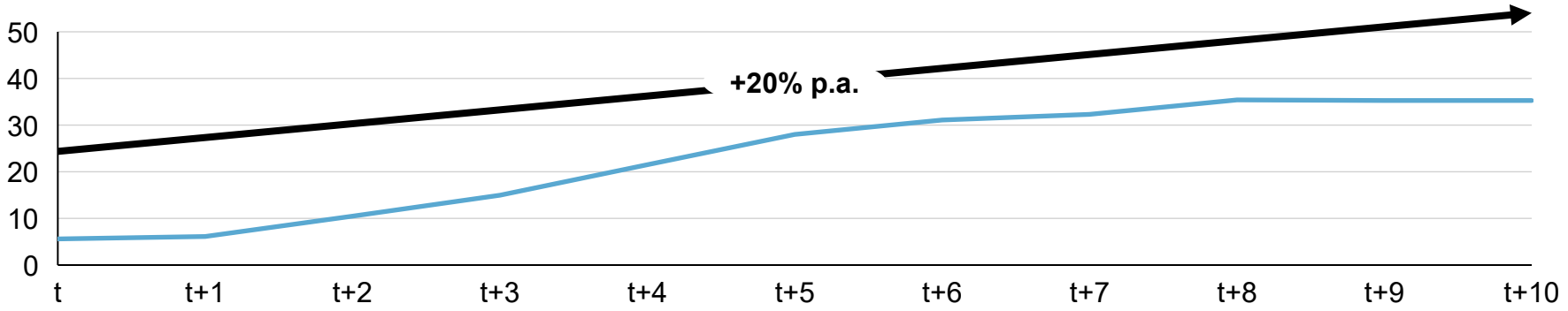
Jasmin Güngör
General Partner, Onsight Ventures

"North America's scaling advantage compounds with every hiring cycle, Europe must remove the structural barriers that prevent Deep Tech companies from growing at the same velocity."

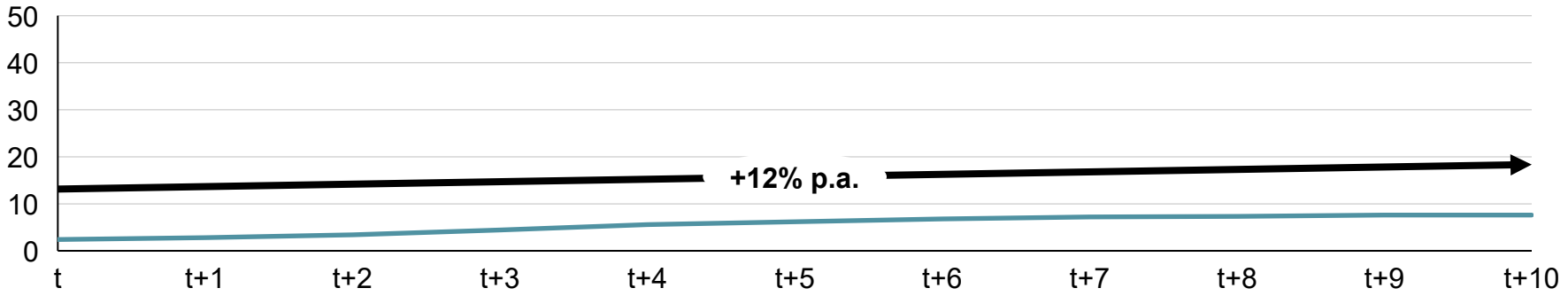
Ariel Merabi Golan
Investment Director, Bayern Kapital

Europe's less Deep Tech valuation growth compared to North America

North America median valuation by region by year, in $mn by year after founding



Europe median valuation by region by year, in $mn by year after founding



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Insights

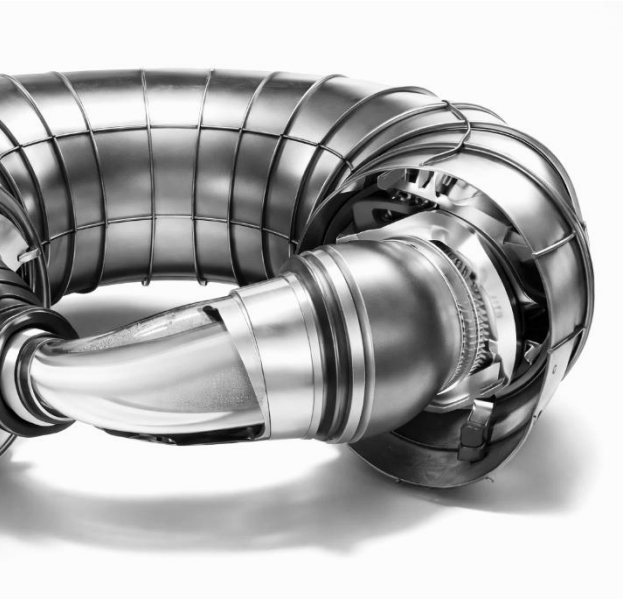
North American Deep Tech startups consistently command higher median valuations than their European counterparts right from the founding year

The valuation of North America Deep Tech startups grows at an average rate of +20% per year, significantly outpacing the +12% annual growth seen in Europe

A significant 'brain drain' of EU founders to the US presents an untapped, high-potential ecosystem of European-led startups that could strategically accelerate domestic innovation if successfully repatriated

"Founders do not accept unlimited dilution. Given the larger funding rounds in the U.S., steeper valuation curves are a logical consequence."

Gregor Haidl
Partner, HTGF



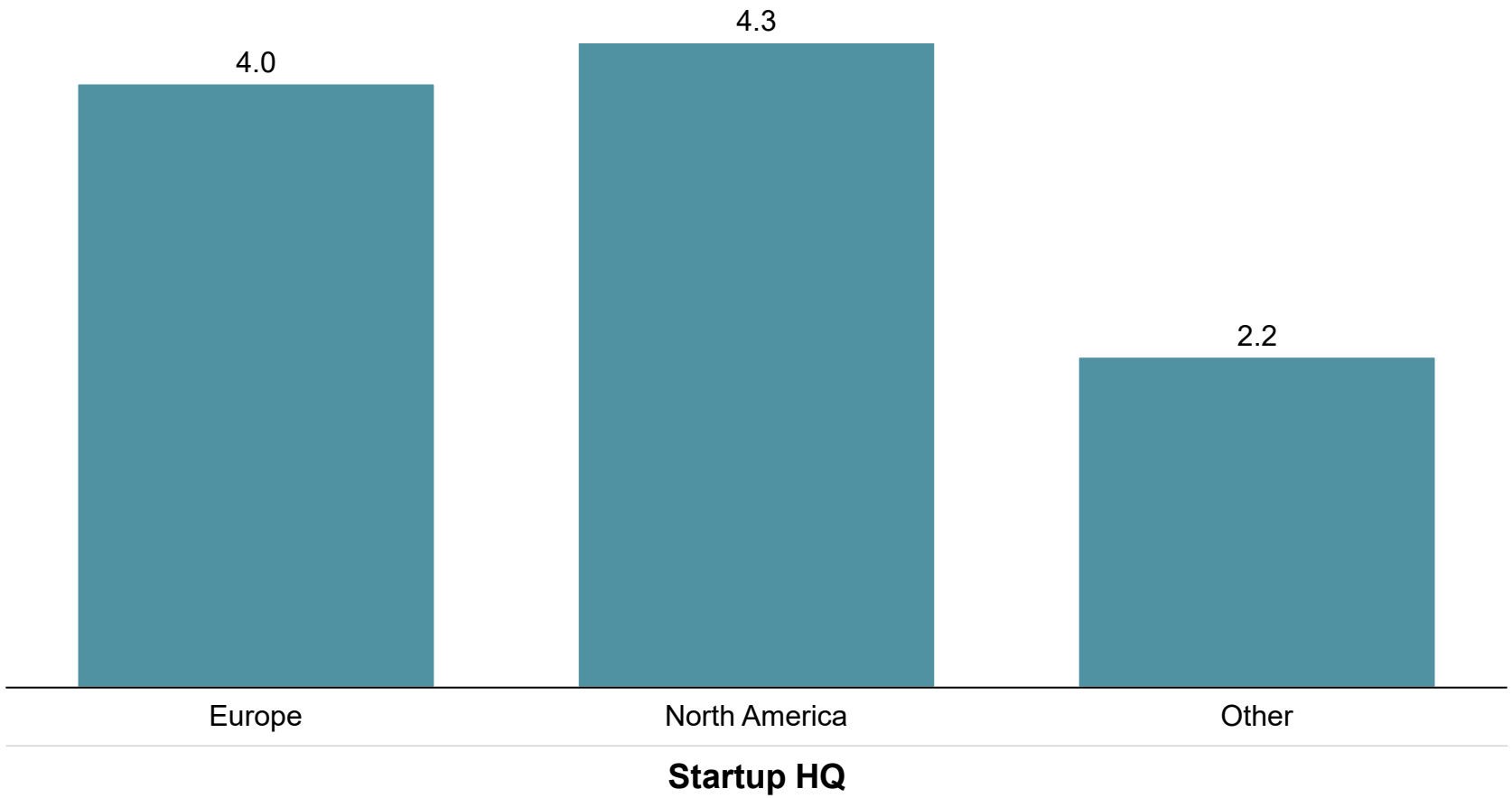
Contents

The focus of the following analysis lies on the filtered dataset of 5k global validated Deep Tech startups and 11.5k Deep Tech founders

			# of organizations	1	2	
	48.7k	**20.3k**	**15.2k**	**13.6k**	**5k**	**11.5k** # of founders
Data source	**Deep Tech organizations** Deep Tech tag on Dealroom	**Funding information** +$100k funding received	**Startup maturity** Deep Tech organizations founded ≤ 10 years ago	**Matched organizations** Deep Tech startups found on Dealroom and Pitchbook	**Funding information validated** Deep Tech organization funding validated	**Human Capital information** Education and experience information on LinkedIn
	dealroom.co	dealroom.co	dealroom.co	dealroom.co	dealroom.co	in
Validation source				**Matching** Identified organizations on Pitchbook	**Funding reliability** Funding information within ≤ 10% deviation	
				PitchBook	crunchbase	

Founders of North merican and European Deep Tech startups are on par

Founders startup HQ, in k of founders



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Insights

Together, Europe and North America account for ~80% of all Deep Tech founders in our dataset

Since founders in North America and Europe are on par, we can directly compare them throughout the entire analysis

"Europe and North America exhibit comparable quantitative founder representation, but this apparent parity masks qualitative differences, suggesting that similar starting conditions do not necessarily translate into equivalent ecosystem dynamics or outcomes."

Prof. Dr. Theresa Treffers
Professor, TUM

Through rigorous data validation and transformation, we generate a credible dataset of Deep Tech founding teams

1 University and company standardization

Standardization of university and company names by mapping master files store every known name variation (e.g. “MIT”, “MIT Sloan”) alongside one canonical name

Each raw entry is matched first by exact lookup, then by fuzzy match (≥85% similarity), and kept as-is if neither succeeds

Ensures all founder comparisons by alma mater or employer are consistent, not fragmented by spelling variants

2 Transformation of founder validation

Each founder is labelled as either Current or Past founder; counts per type are aggregated to Deep Tech startup level

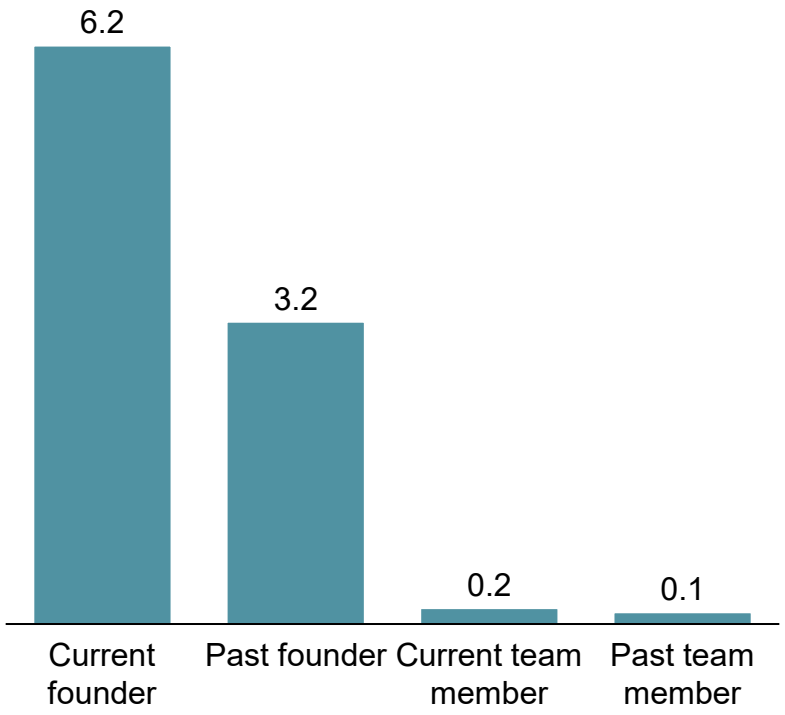
A temporal validity check removes founder startup links where the founder's last recorded end date was more than one year before the startup's last known funding event

3 Experience field, education degree and education field categorization through majority vote

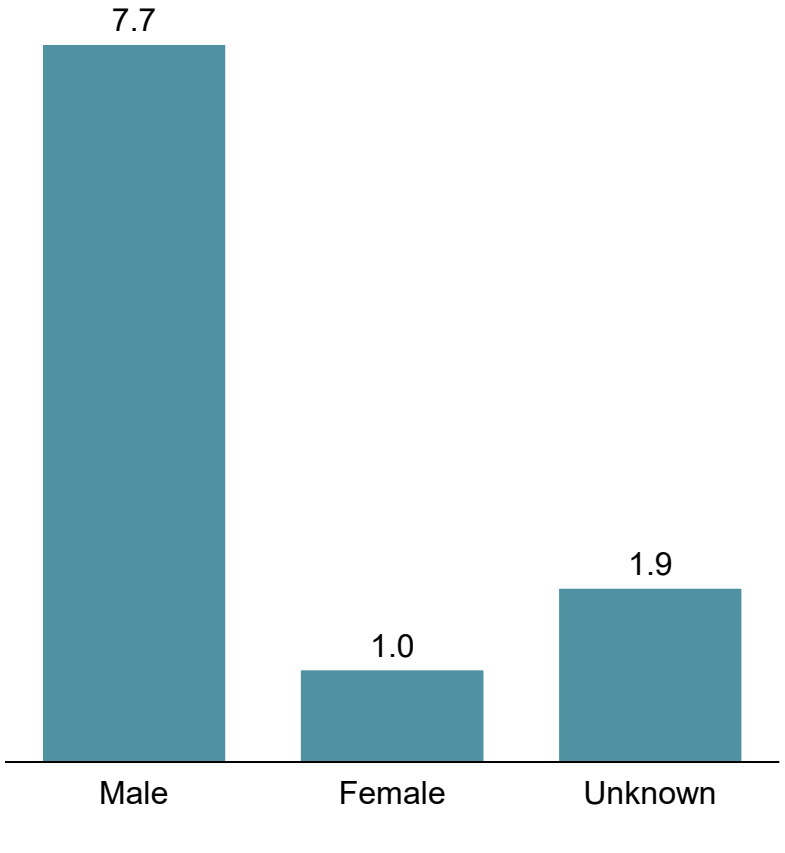
3a) **Dictionary based**	**Multilingual keywords** for broad, cross-border data extraction, **Degree level matching** utilizing regex patterns against raw degree dictionaries, **Domain tagging** classifying education and experience into ~20 specific categories (e.g., Engineering, IT, Business, Law, Entrepreneurship) via regex-based dictionaries
3b) **LLM based**	**LLM-Assisted Assessment** utilizing Claude API leveraging the Haiku 4.5 model to classify education degrees, academic domains, and professional experience
3c) **ML based**	**Machine Learning Classification** building and deploying a Random Forest classifier, **Supervised Training** utilizing a meticulously hand-labeled dataset of 1,000 founder profiles to train the model

~34% of founder-startup relationships have already ended, a dual risk of narrow talent base and cap-table instability

Founders' status, in k of founders



Founders' gender, in k of founders



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Insights

With only 1.0k female vs. 7.7k male founders, Europe and North America are systematically excluding more than half the talent base, translating directly into missed innovation, uncreated startups, and foregone GDP

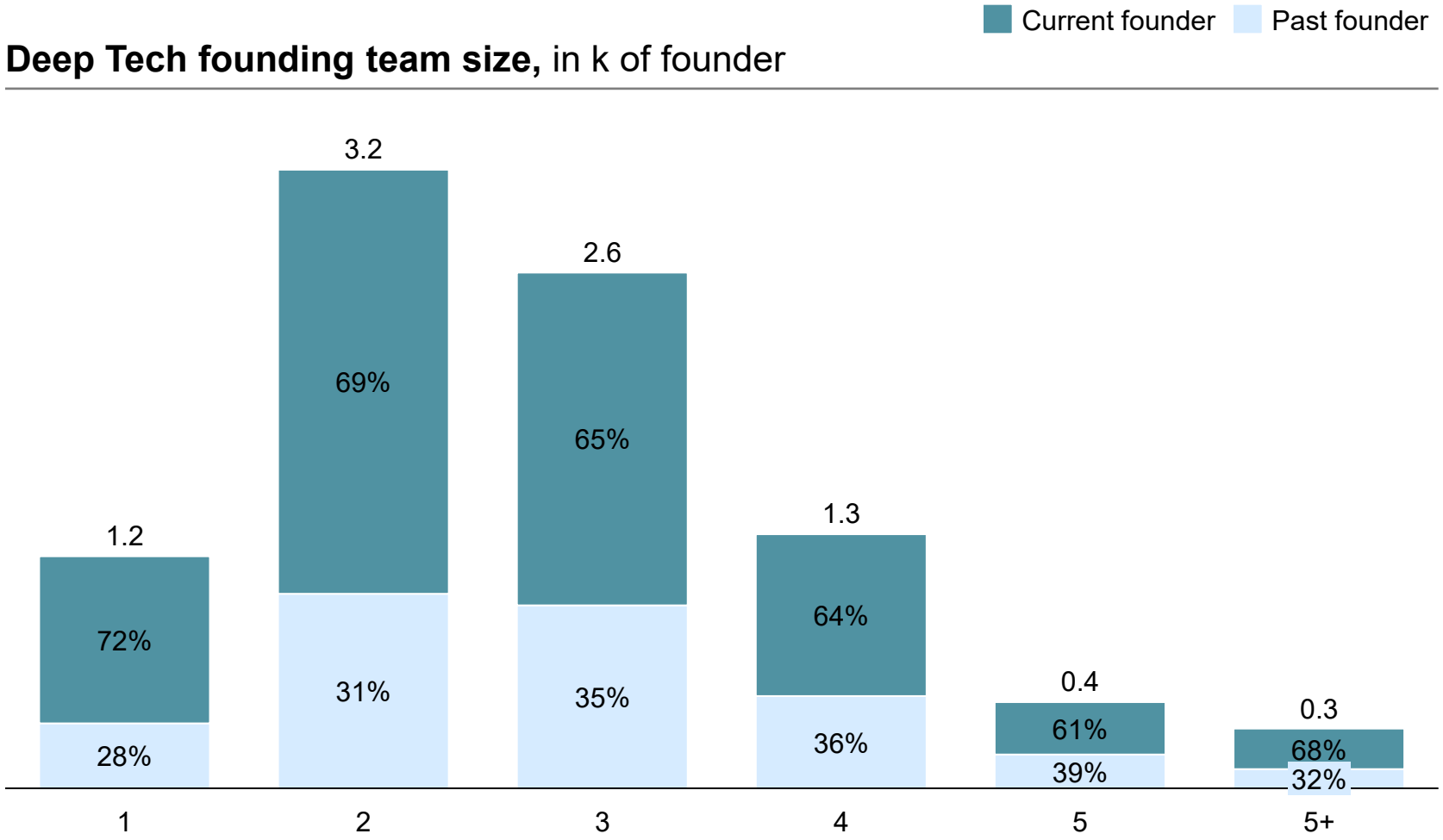
6.2k current founders vs. 3.2k past founders shows founder teams need to be prepared for changes in the founding team and manage the cap table accordingly

"Strong ecosystem enable first-time founders to succeed by providing access to capital, networks and targeted support. Creating equitable framework conditions is essential for all entrepreneurial talent and plays a key role in unlocking opportunities for women founders."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

Two-person founding teams are the dominant model in Deep Tech

Deep Tech founding team size, in k of founder



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Insights

Teams of 2 represent the single largest cohort (3.2k), nearly 3× the size of solo founders (1.2k)

The 2-3 founder window is the sweet spot, teams of 2 and 3 account for ~5.8k founders (~64% of total)

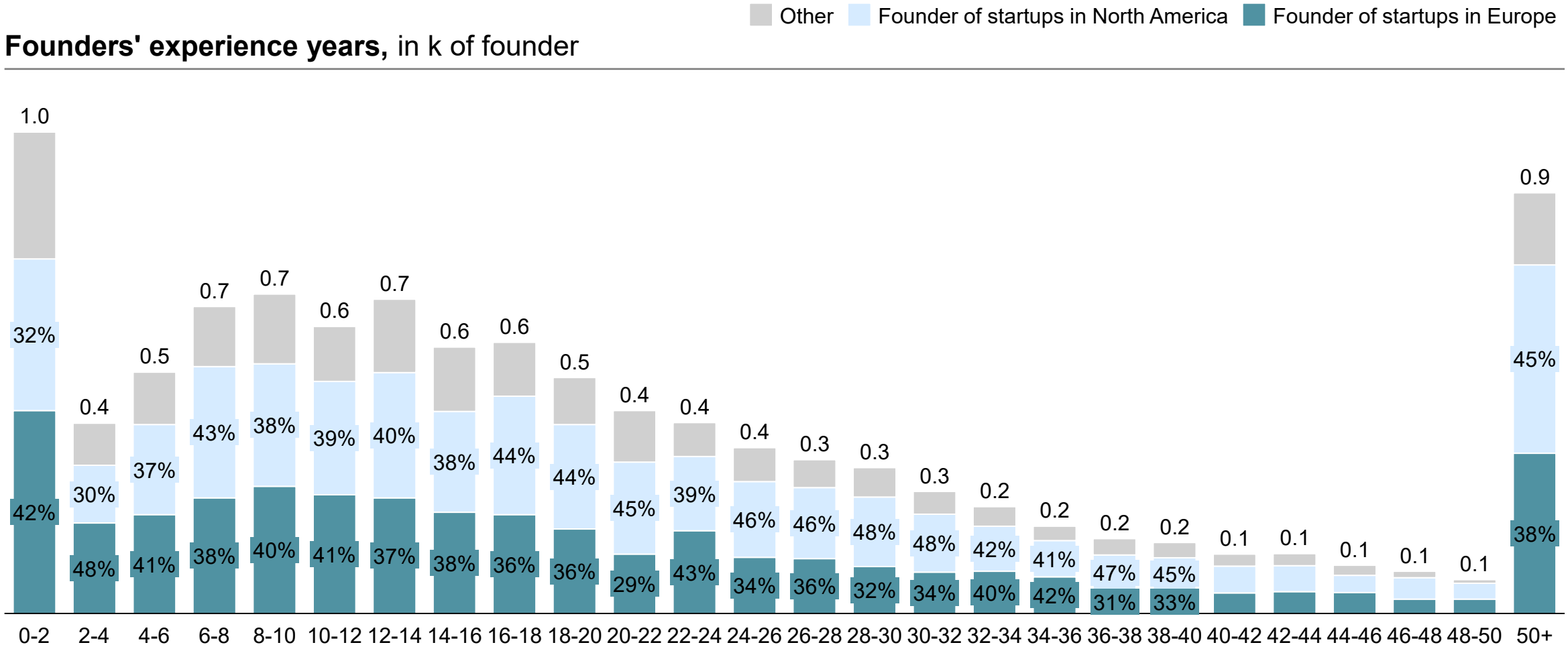
Deep Tech founding teams require founder vesting and ESOP pool structures from day one, as teams must plan for the scenario of a departing founder, ensuring the company's cap table allows unvested shares to revert to the option pool

"The high concentration of founding equity among a small number of individuals makes it essential to implement robust vesting arrangements and well-designed employee participation programs early in the company's lifecycle."

Dr. Mauritz von Einem
Partner, ARQIS

Deep Tech founders strike at peak experience: the 6-14 years window dominates founding activity

Founders' experience years, in k of founder



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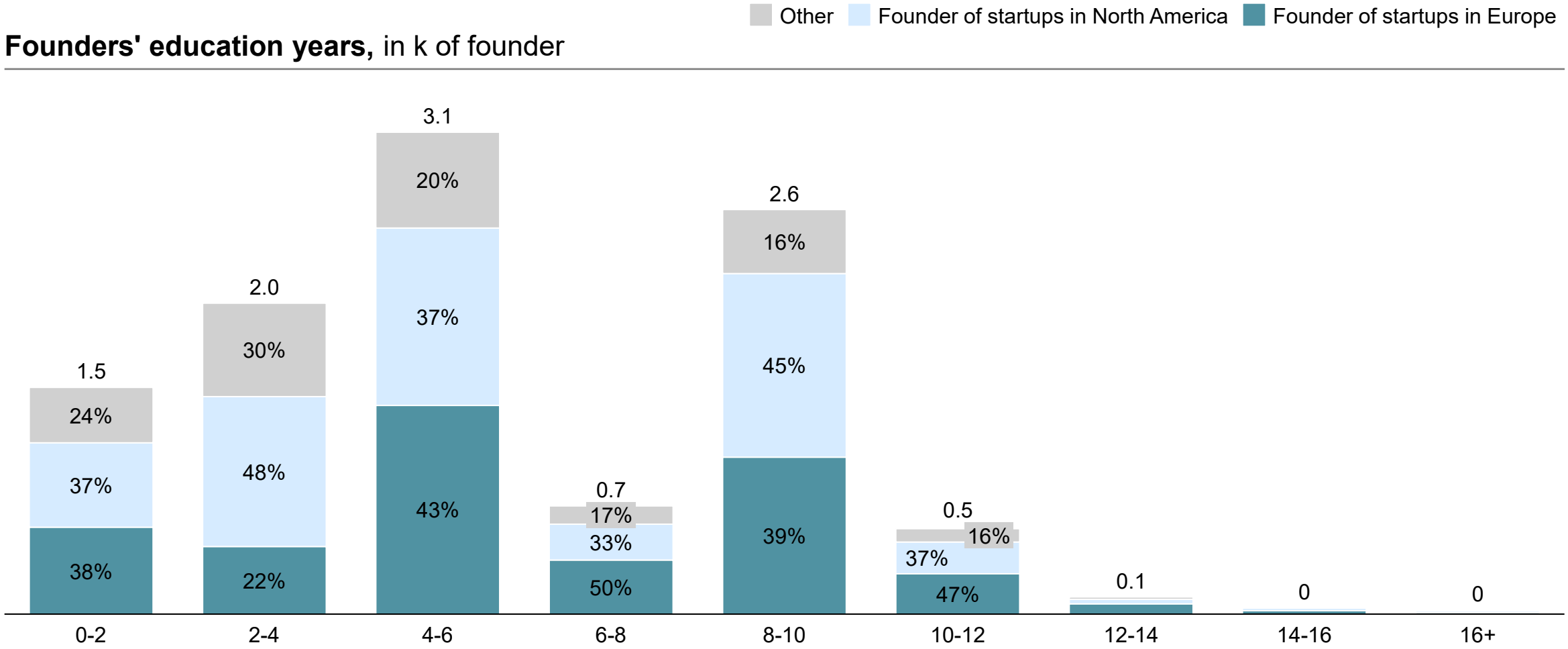
Deep Tech founders are highly educated, mostly with a master's degree or PhD

Founders' education years, in k of founder



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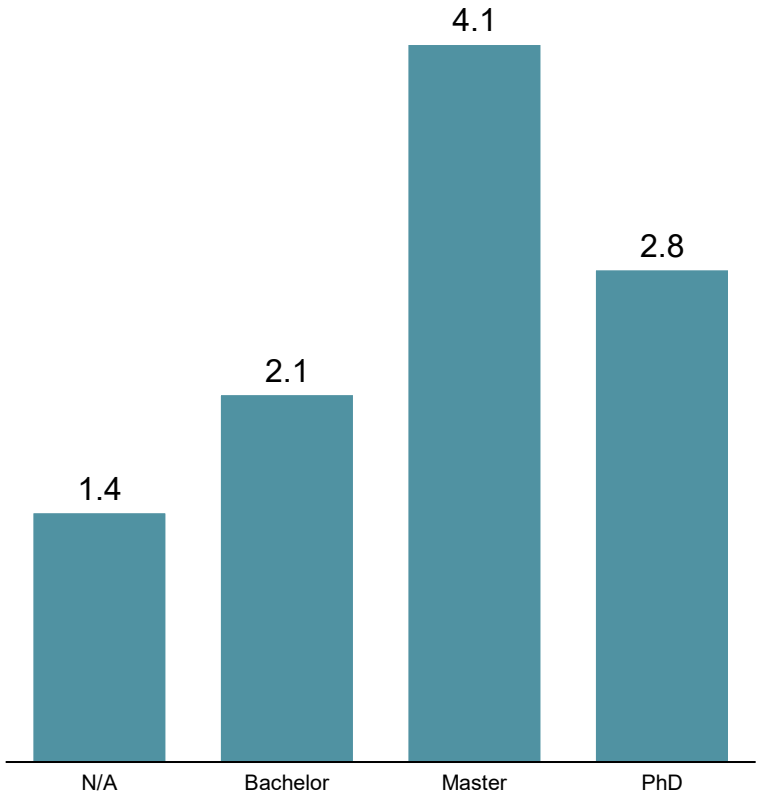
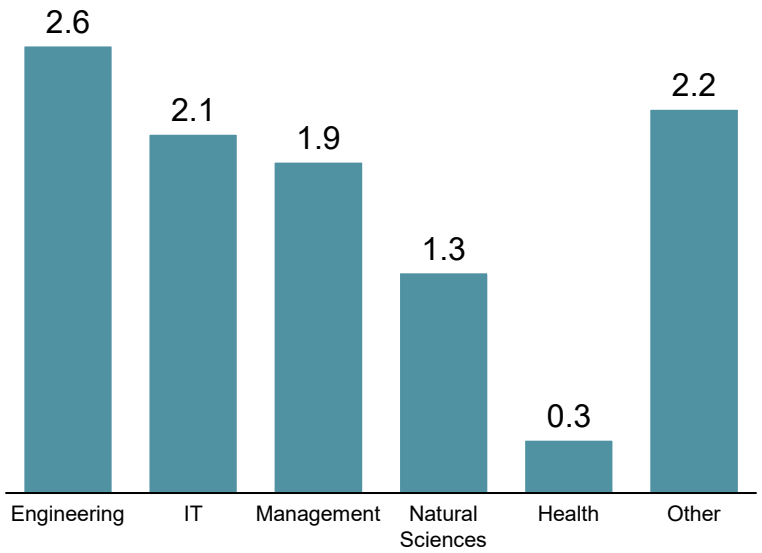
Postgraduate education is the de-facto entry ticket to Deep Tech, build pipelines, not just programs

Founders' highest academic degree, in k of founder



Top 5 founders' field of highest academic degree, in k of founder



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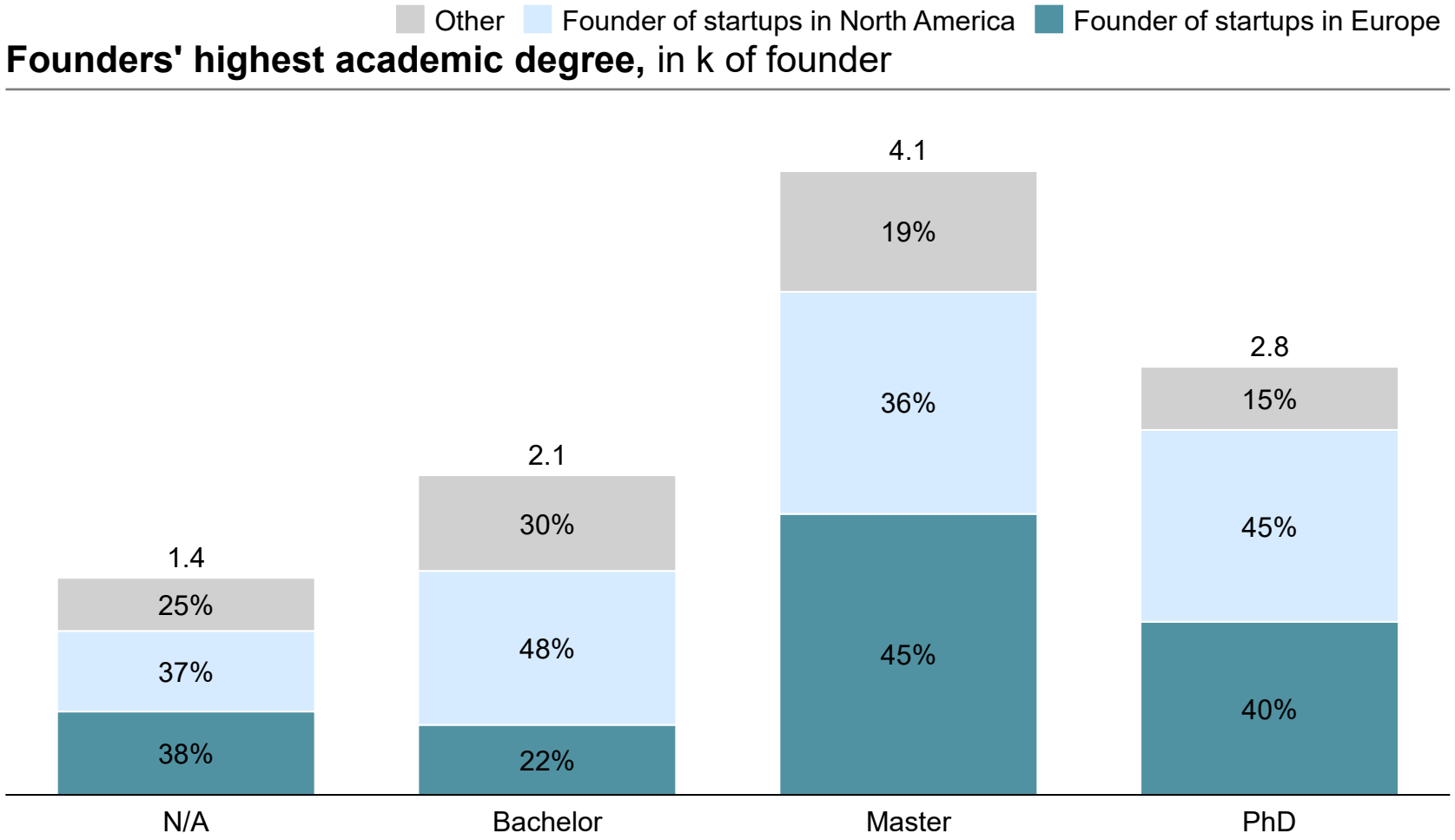
Insights

Master's & PhD founders account for ~61% of all founders (7.0k of 11.5k), making postgraduate a baseline requirement, ecosystems that lack strong graduate institutions are structurally locked out

"Postgraduate education has become a baseline rather than a differentiator in Deep Tech, with the majority of founders holding Master's or PhD degrees effectively excluding ecosystems without strong graduate institutions. At the same time, the dominance of engineering and IT backgrounds over management underscores that Deep Technical expertise is a prerequisite for founder formation. Purely commercial pathways, including MBA-driven pipelines, are therefore unlikely to generate meaningful Deep Tech entrepreneurship unless tightly coupled with technical co-founders."

Benjamin Bandur
Counsel, ARQIS

Europe leads in producing postgraduate talent but is failing to convert it into startups at scale



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Insights

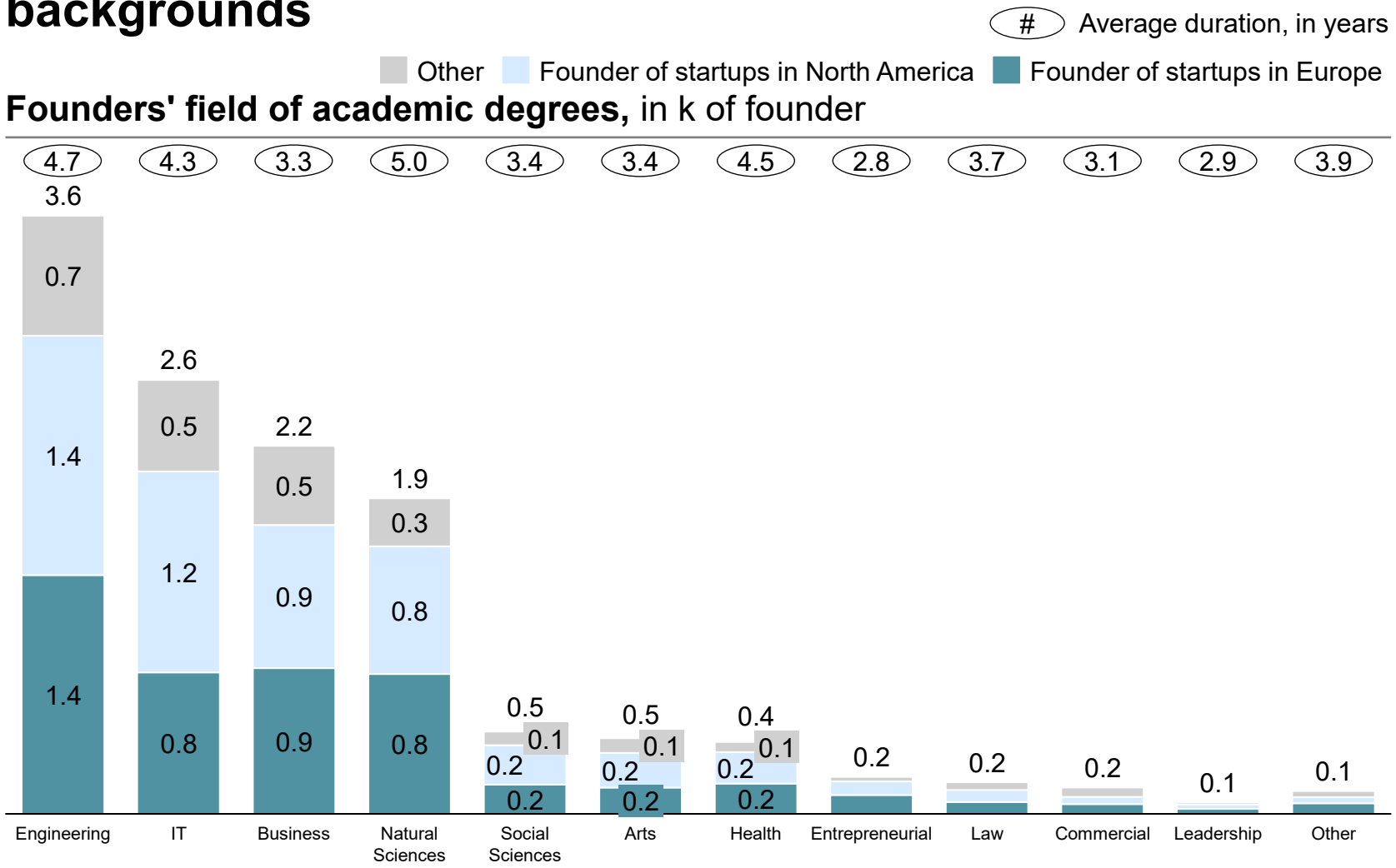
European Master's holders (1.8k) form the single largest region-degree combination in the dataset, yet funding lags North America confirming that the bottleneck is commercialization and risk-taking culture, not raw talent supply

North America's more even spread across Bachelor's (0.9k), Master's (1.4k), and PhD (1.3k) reflects a lower credential threshold to found

"These patterns indicate that while Deep Tech entrepreneurship is structurally rooted in advanced education, Europe's strength in postgraduate training is not yet fully translating into venture creation, implying a need to more deliberately convert PhD and Master's talent into entrepreneurial pathways."

Prof. Dr. Theresa Treffers
Associate Professor, TUM

Engineering and IT dominate Deep Tech founder backgrounds



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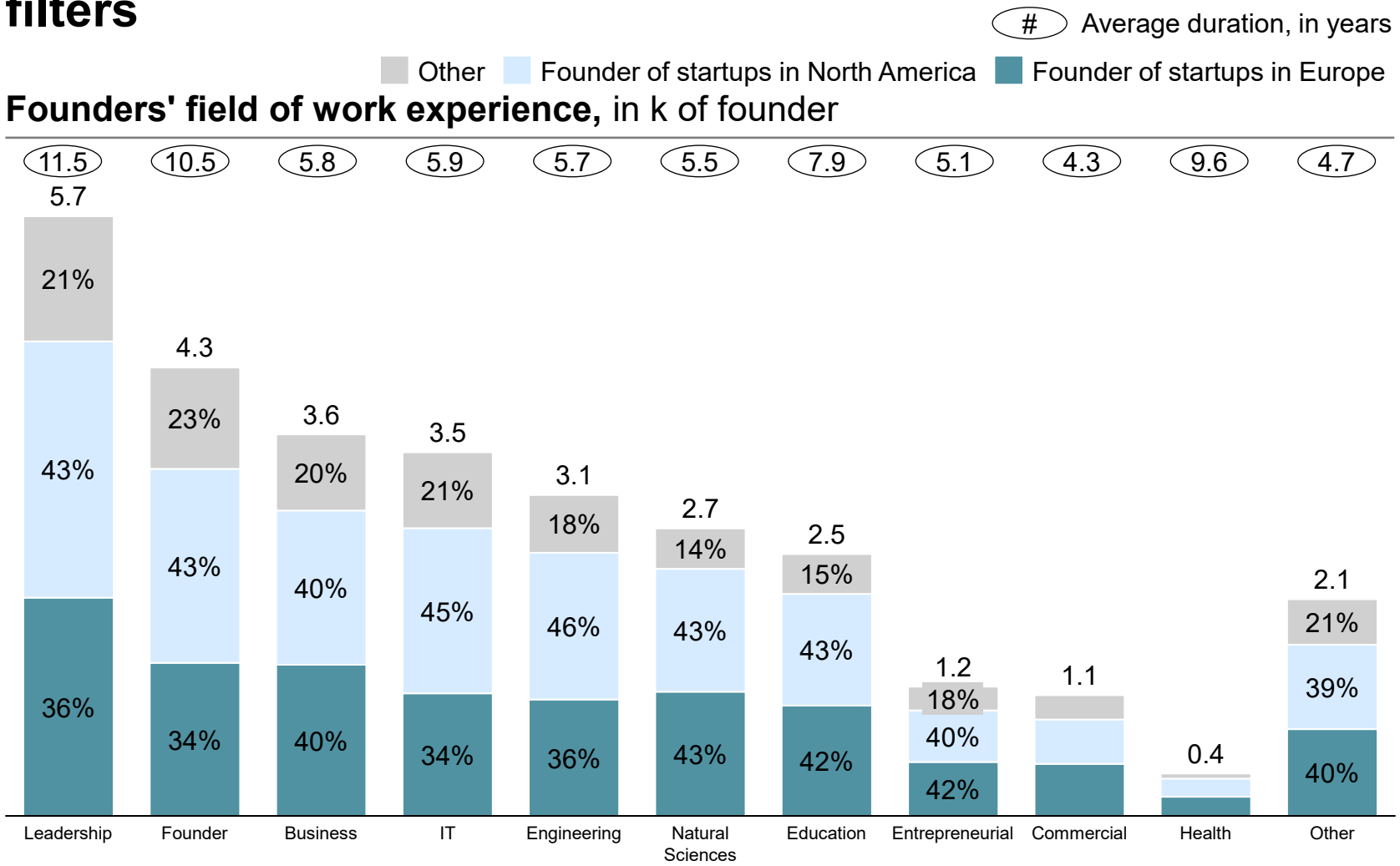
Insights

Engineering (3.6k) and IT (2.6k) together represent over half the founder base, with North America leading in both, Silicon Valley's engineering-to-startup conversion machine remains a template Europe has not yet systematically replicated

"We need to solve the hardest engineering problems imaginable to create real value. The deepest value creation will sit in frontier engineering. AI will create enormous value in software, but the deepest technological moats will remain in the physical world. Most importantly, Europe needs to believe in engineering excellence again. Even Americans still believe in 'German Engineering' more than we do ourselves."

Jasmin Güngör
General Partner, Onsight Ventures

Prior leadership and founding experience are the founder filters



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Insights

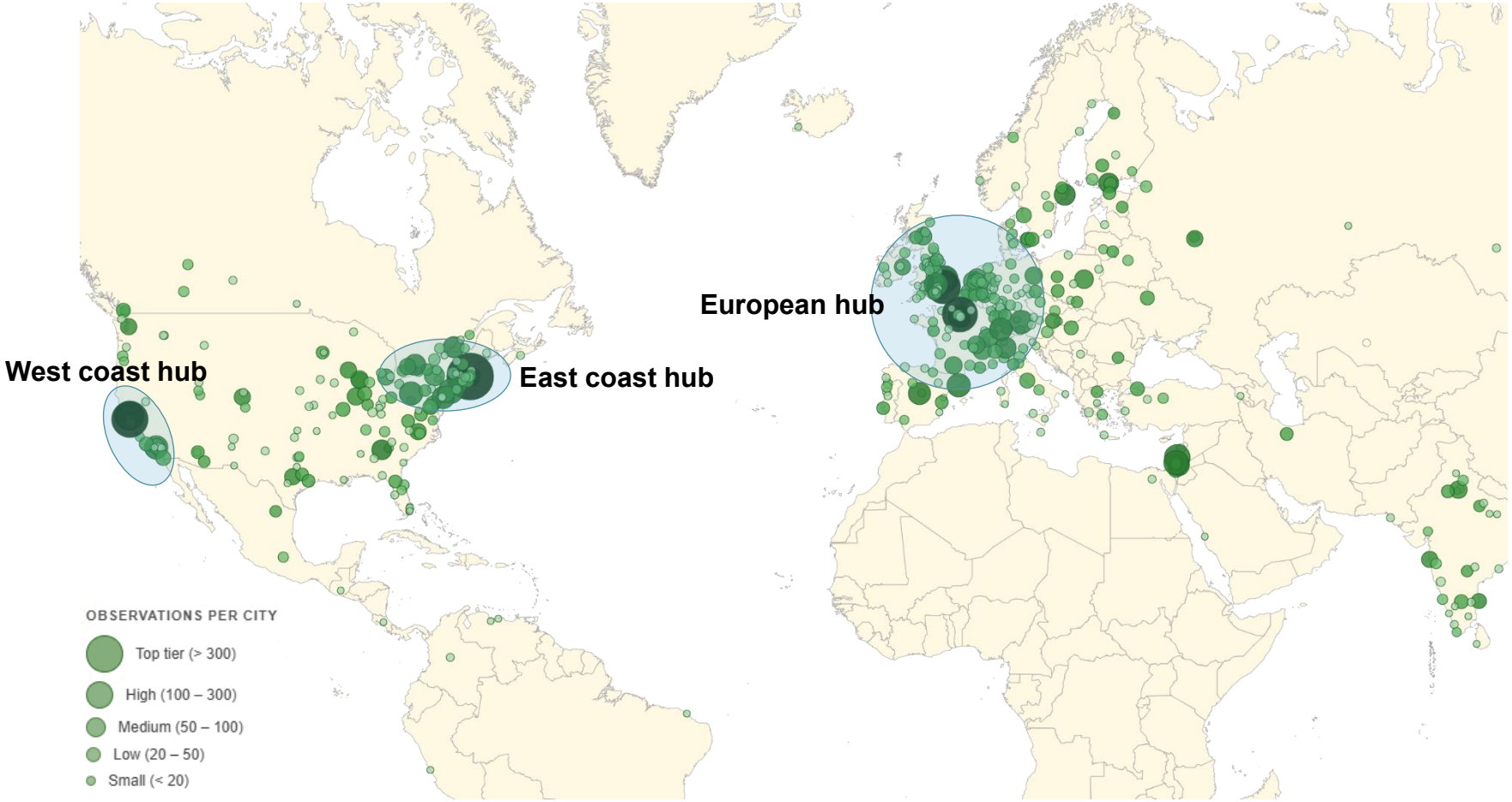
Leadership (5.0k) and prior founder experience (4.4k) are the two largest work experience categories, dwarfing technical fields, this means most Deep Tech founders are not first-time risk-takers, a profile that accelerators sourcing raw academic talent will systematically miss

"Many of the most successful founders are serial entrepreneurs or individuals with a highly differentiated set of experiences and skills. At the same time, some of the strongest Deep Tech companies emerge when experienced operators team up with exceptional academic founders. Europe should not underestimate how difficult company building is for first-time founders."

Jasmin Güngör
General Partner, Onsight Ventures

Deep Tech founders cluster around three university hubs

Global study location of Deep Tech founders, in # of founder



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Insights

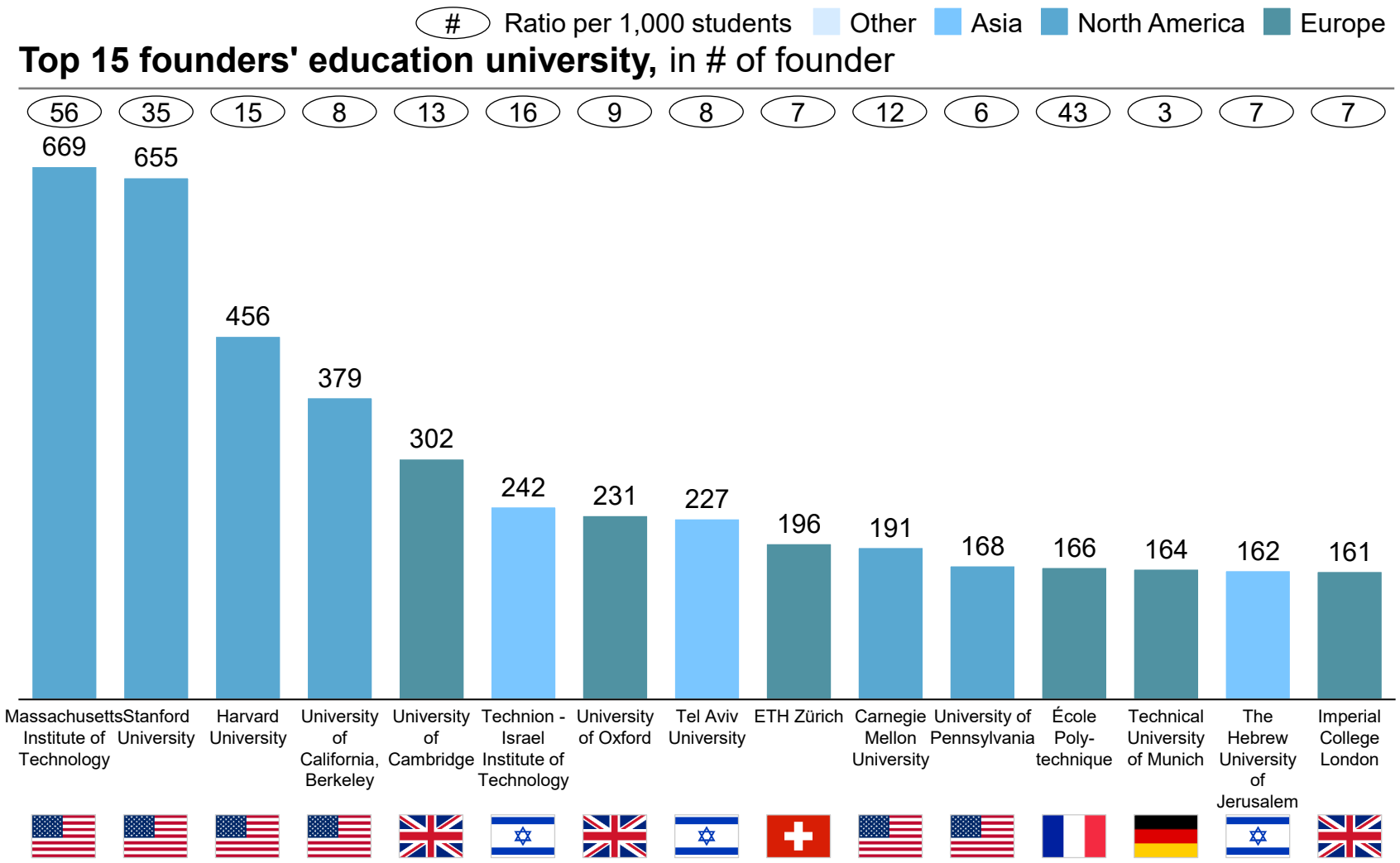
Three global university clusters educate most Deep Tech founders: US West Coast (e.g., Stanford, Berkeley), US East Coast (e.g., MIT, Harvard) and Europe (e.g., Oxford, Cambridge, ETH, TUM)

Outside these hubs, only Israel stands out

"Founders in Central Europe have a unique advantage: some of the world's strongest industrial companies are literally just around the corner, often only a few hours away by train, car or plane. The region combines deep engineering talent, industrial density and an unusually open business culture where access to decision-makers is still remarkably direct."

Jasmin Güngör
General Partner, Onsight Ventures

MIT and Stanford's dominance is a structural advantage, Europe needs a coordinated multi-university strategy



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Insights

MIT (669) and Stanford (655) together produce more Deep Tech founders than the next three universities combined, and at 56 and 35 founders per 1,000 students respectively, a density Europe's best institutions (Cambridge at 13/1,000) cannot approach individually

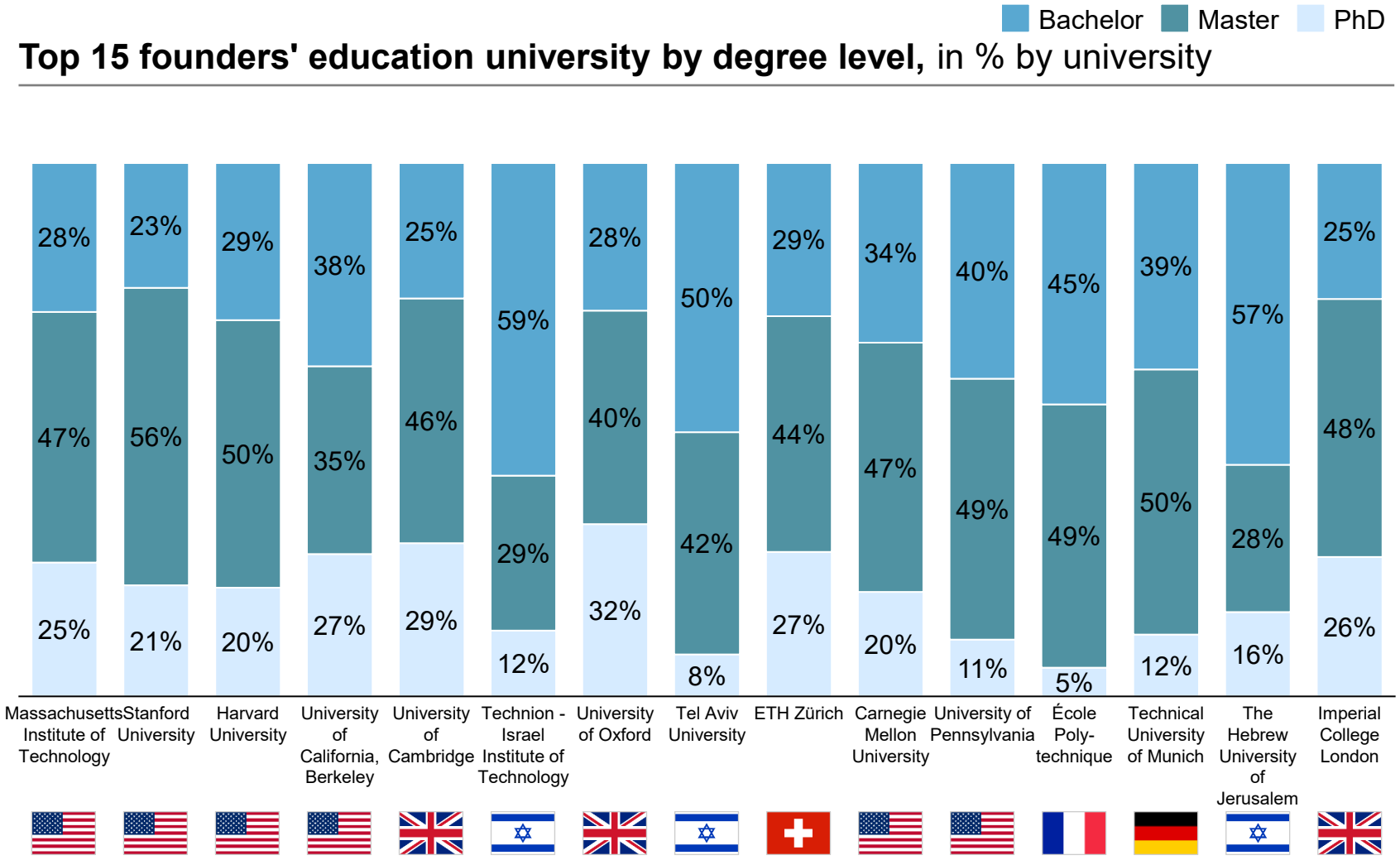
Six European universities appear in the top 15 (Cambridge, Oxford, ETH Zürich, École Polytechnique, TUM and Imperial College), Europe requires a coordinated, cross-institution strategy to compete, not incremental improvements to individual schools

"It is encouraging to see leading European institutions such as TUM represented, the next step is to systematically bring more universities into the Deep Tech founding pipeline."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

PhD intensity separates research universities from the pack, but Master's degrees dominate most top institutions

Top 15 founders' education university by degree level, in % by university



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Insights

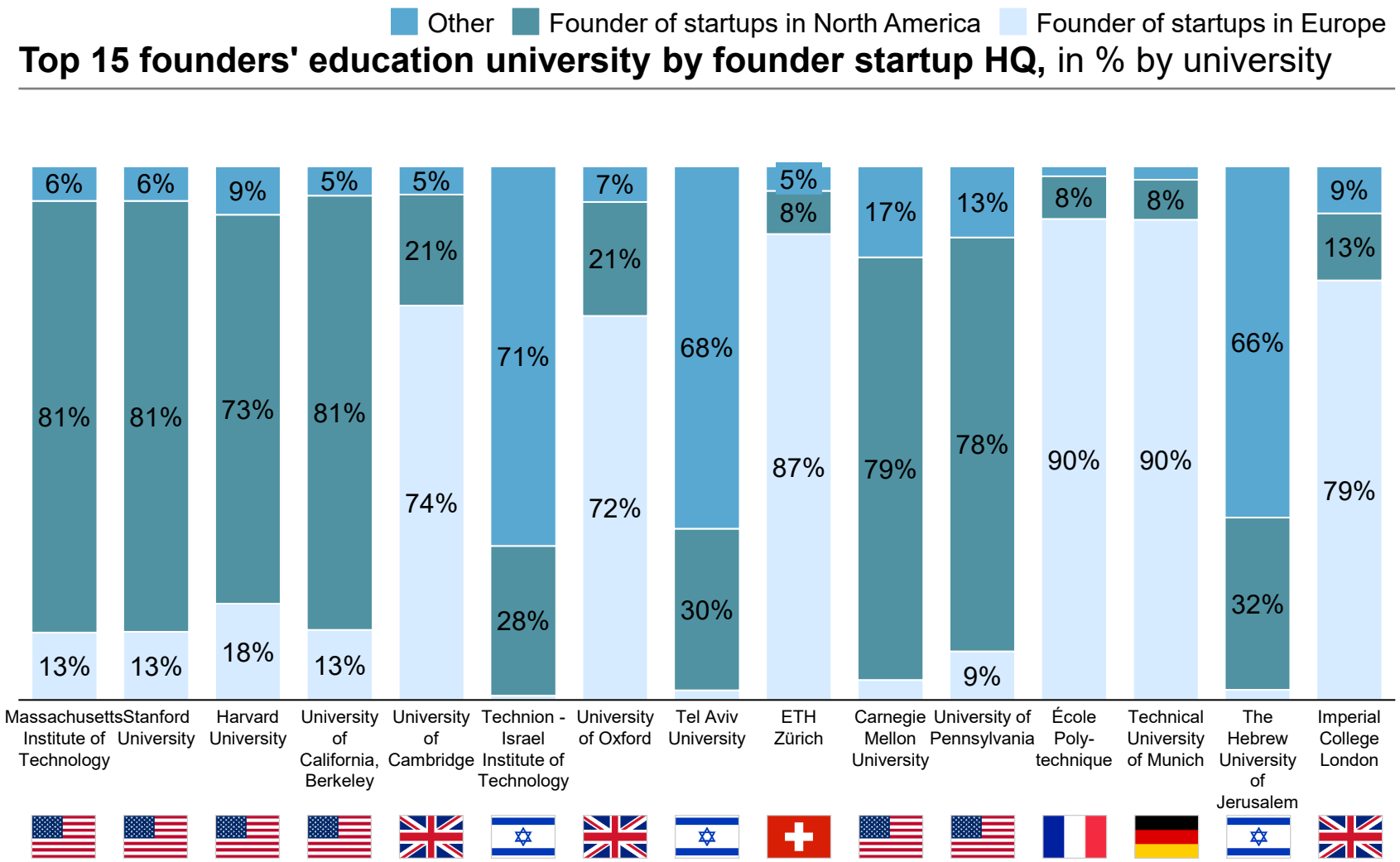
Master's degrees dominate at most top institutions (Stanford 53%, ETH Zürich 49%, Imperial 48%), confirming that applied postgraduate training, is the primary conveyor belt into Deep Tech founding

Oxford leads on PhDs (35%) while TUM leads on Master's (47%), illustrating two distinct models that both produce founders, the implication is that there is no single "right" pathway, but institutions must be intentional about which model they optimize for

"Bridging the gap between research and company building is one of the largest untapped opportunities in European Deep Tech."

Dr. Anne Hinze
Investment Manager, DTCF

~70-90% of Deep Tech founders launch their startups in the same region where they studied



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Insights

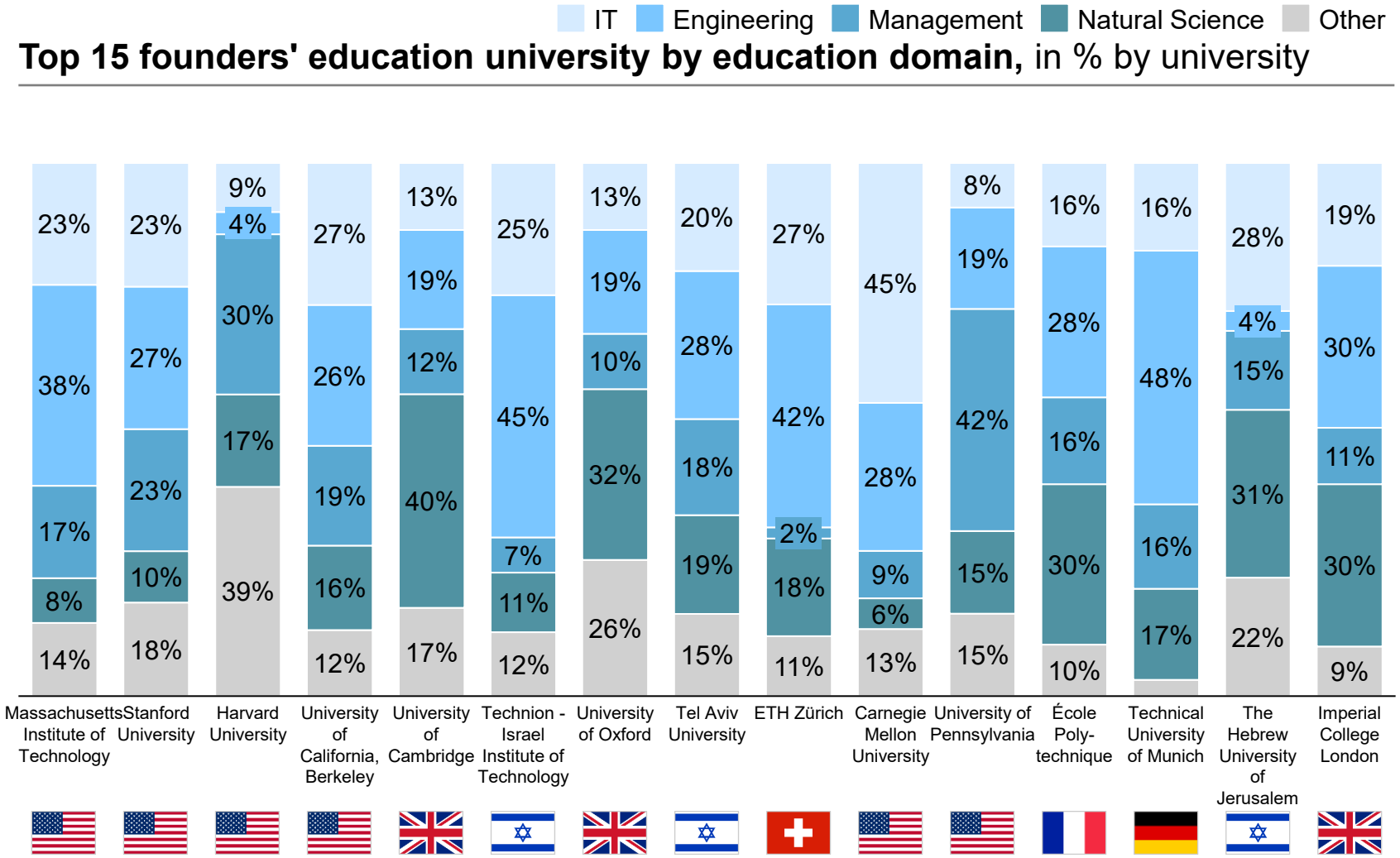
US universities retain ~80% of their founders domestically, meaning every dollar invested in building a Stanford or MIT alumni entrepreneurship ecosystem compounds locally, Europe cannot import this effect, it must replicate the institutional conditions that produce it

Cambridge and Oxford are Europe's leakiest pipelines at only ~70% regional retention, suggesting that even the continent's strongest brands cannot fully compete with the pull of US capital markets

"The strong regional retention of founders underscores that in Deep Tech, innovation ecosystems are fundamentally local, with universities serving as both the birthplace and anchor of Deep Tech ventures."

Prof. Dr. Theresa Treffers
Professor, TUM

Engineering and IT dominate founder education at all 15 top universities, forming a technical foundation



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Insights

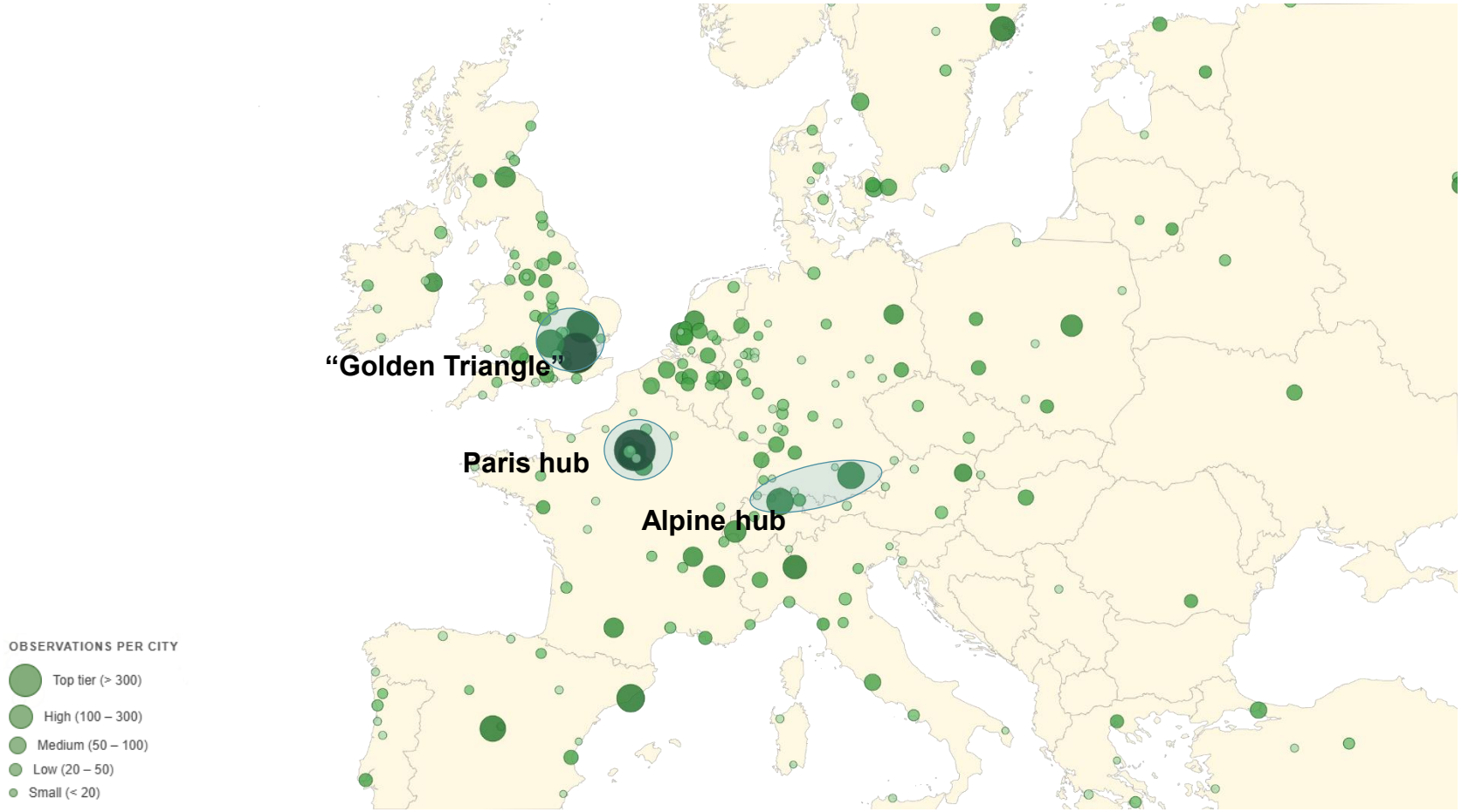
Engineering + IT together exceed 50% of founder backgrounds at most institutions, yet the majority of Deep Tech startup failures cite go-to-market and commercial execution as root causes, the education system is producing technically excellent founders who are structurally underprepared to build businesses

"The engineering and IT-focused education of many Deep Tech founders is essential, but it also presents specific challenges. Starting a business also requires commercial acumen, team leadership, and sales skills. Universities should provide early and practical training in these areas to technical students. This could increase success rates and prevent startups from being launched purely as technology-driven ventures."

Gregor Haidl
Partner, HTGF

Deep Tech founders studied across Europe, with hotspots around London, Paris, Munich, and Zurich

European study location of Deep Tech founders, in # of founder



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Insights

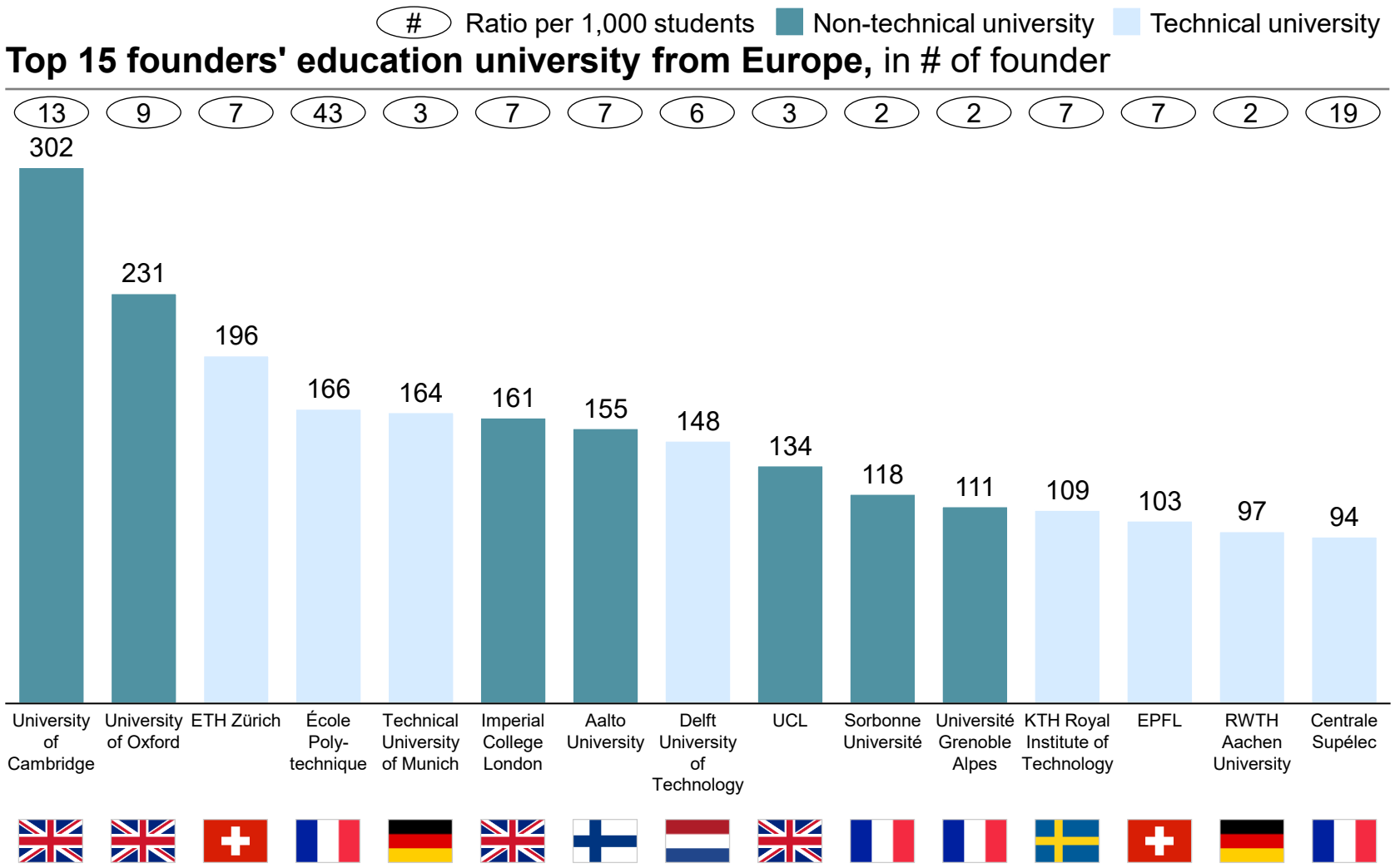
Deep Tech founder education is heavily concentrated in a few top-tier academic hubs, especially London (includes Oxford and Cambridge), Paris, Munich, and Zurich (including Lausanne)

Structural differences between US and EU R&D ecosystems are not a weakness, but a strategic advantage: Europe's world-class academic and research institutions serve as a robust, continuous engine for startup origination

"Deep Tech startups benefit from critical mass, which naturally leads to regional concentration while open access and connectivity across regions remain essential for ecosystem-wide growth."

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting, IHK

Cambridge leads Europe's top 15 with 302 founders, followed by Oxford and ETH Zürich



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Insights

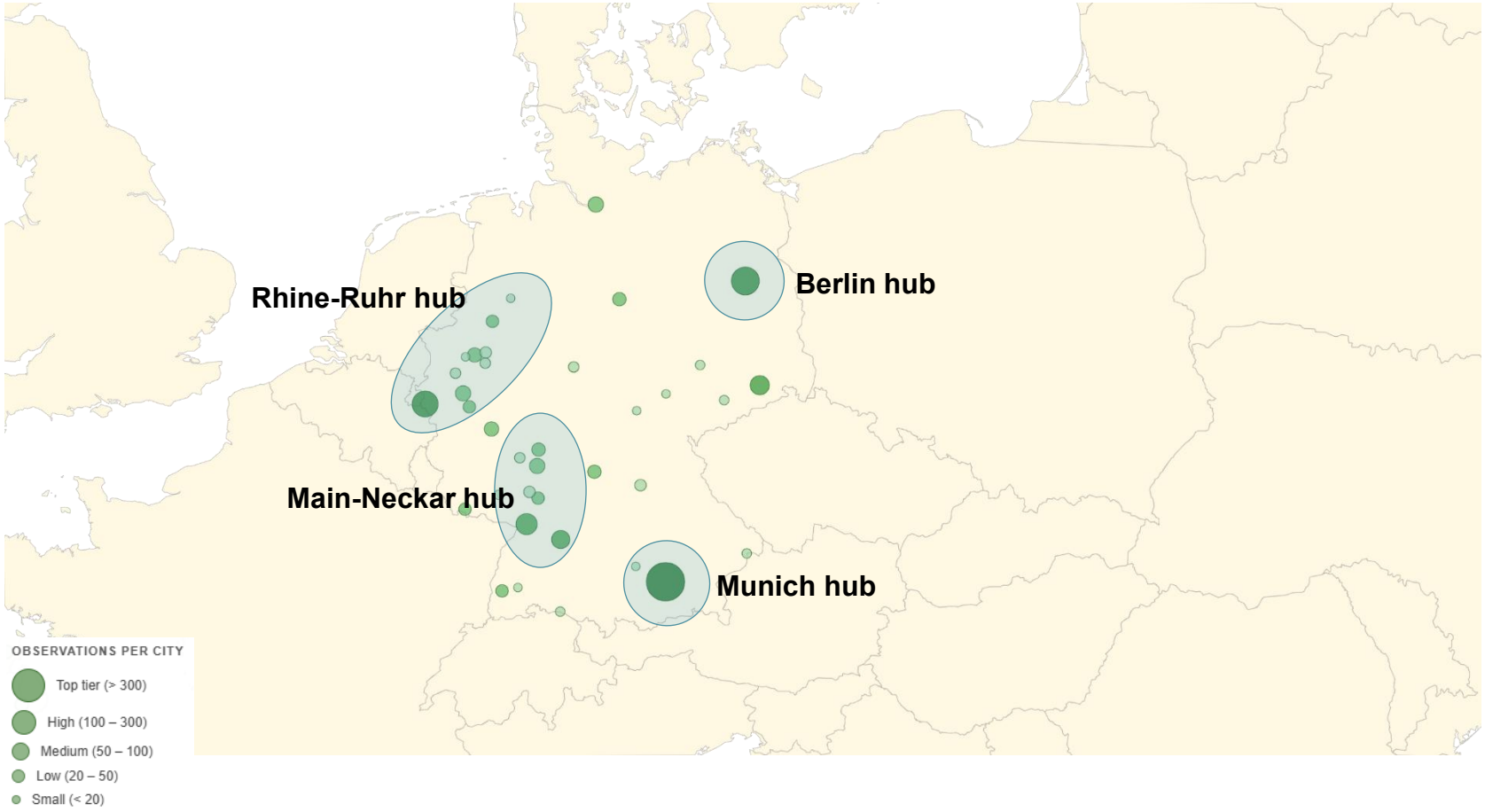
Cambridge's 302 founders lead Europe, but its ratio of 13 per 1,000 students is dwarfed by École Polytechnique at 43 per 1,000 and Centrale Supélec at 19 per 1,000, meaning they are dramatically more efficient founder factory per capita

"The Cambridge ecosystem shows what happens when technical talent, capital and ambition compound in one place over decades. On a relatively small patch of land, thousands of technology companies have been built. People move there because if you are talented, you can find your next company, co-founder, investor or engineer almost instantly. Working closely with Dr. Hermann Hauser, one of the key figures behind the Silicon Fen, gave us a deep understanding of how these ecosystems compound over time."

Jasmin Güngör
General Partner, Onsight Ventures

High regional concentration of Deep Tech founders in Germany, Munich leading

German study location of Deep Tech founders, in # of founder



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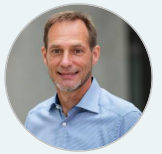
Insights

Munich emerges as Germany's Deep Tech founder hub, Berlin and Aachen following on #2 and #3

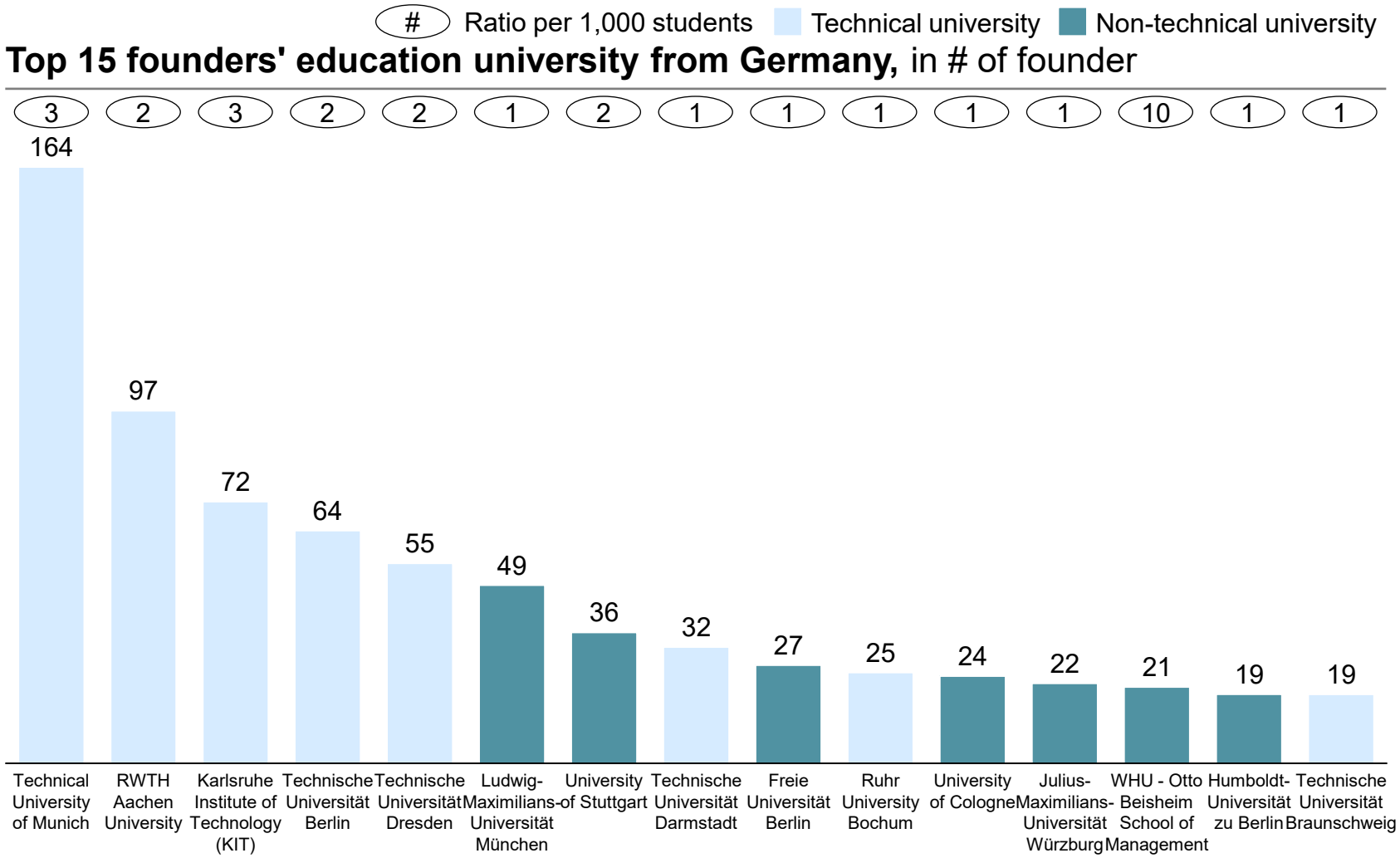
Main-Neckar region and "Ruhrgebiet" as further Deep Tech founder hubs where founders studied in various cities instead of a single hotspot

"Germany does not lack talent, it lacks systematic pathways to turn scientific excellence into scalable companies."



Dr. Torsten Löffler
Investment Director, DTCF

TUM's dominance within Germany showcases that technical universities are the right investment vector



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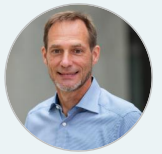
Insights

TUM's 164 founders at 3 per 1,000 students leads Germany, but compared to WHU's 10 per 1,000, Germany's overall ratio still significantly underperforms, indicating that institutional prestige alone is not the bottleneck, entrepreneurship culture and infrastructure within the university are

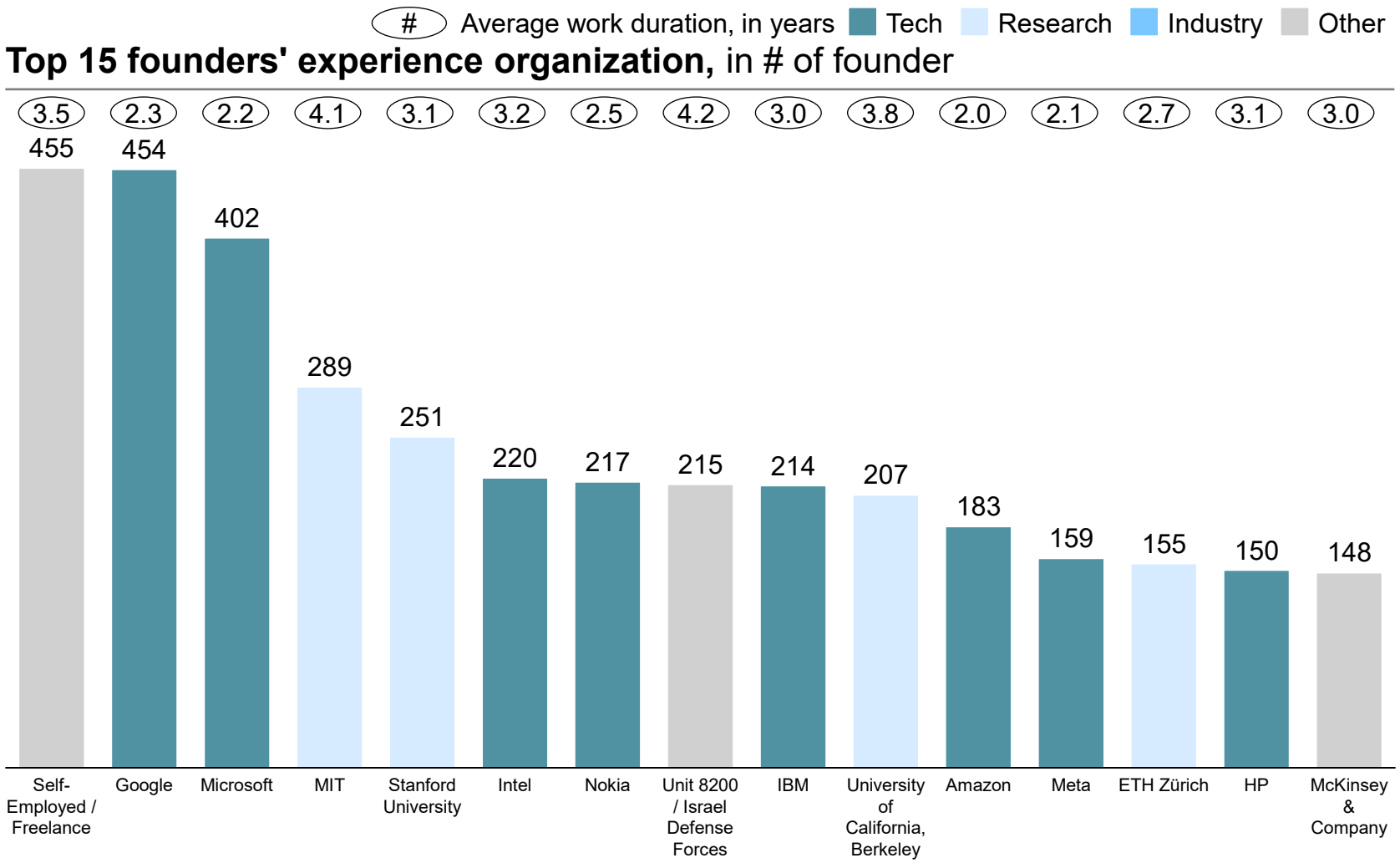
The sharp drop-off from TUM (164) to RWTH (97) to KIT (72) signals a long tail with thin founder output, meaning Germany's Deep Tech founder base is concentrated in a few institutions that should collaborate to exchange learnings and best practices for knowledge transfer

"The real competitive gap is not innovation, but scaling. Europe needs to match its technical excellence with faster capital deployment and organizational growth."



Dr. Torsten Löffler
Investment Director, DTCF

Self-Employment and Big Tech are the primary experience hubs for founders



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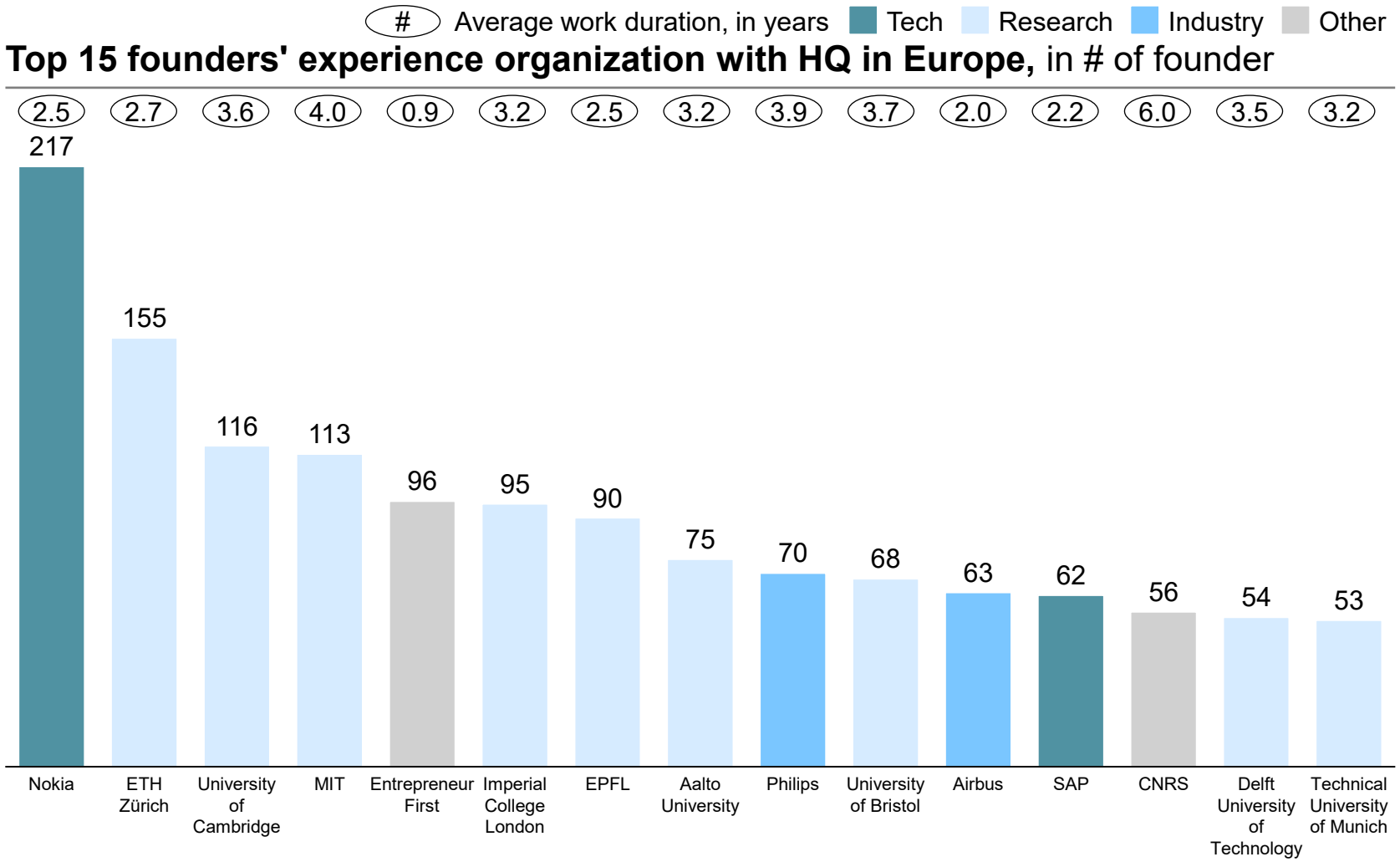
Insights

Nokia's collapse became a state-sponsored talent explosion, when Microsoft's 2013 acquisition freed thousands of engineers, Finland and Nokia itself (via the Bridge program) actively converted layoffs into startups, turning a corporate failure into a Deep Tech founding wave

"Our experience suggests that successful Deep Tech founders rarely emerge in isolation. Many of the strongest teams combine exceptional technical talent with individuals who understand execution, scaling and commercial strategy. Experience from organizations such as McKinsey, the Big Four or large technology companies can be highly valuable when translating frontier technology into scalable businesses."

Jasmin Güngör
General Partner, Onsight Ventures

Universities are the primary source of Deep Tech founders in the European ecosystem



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Insights

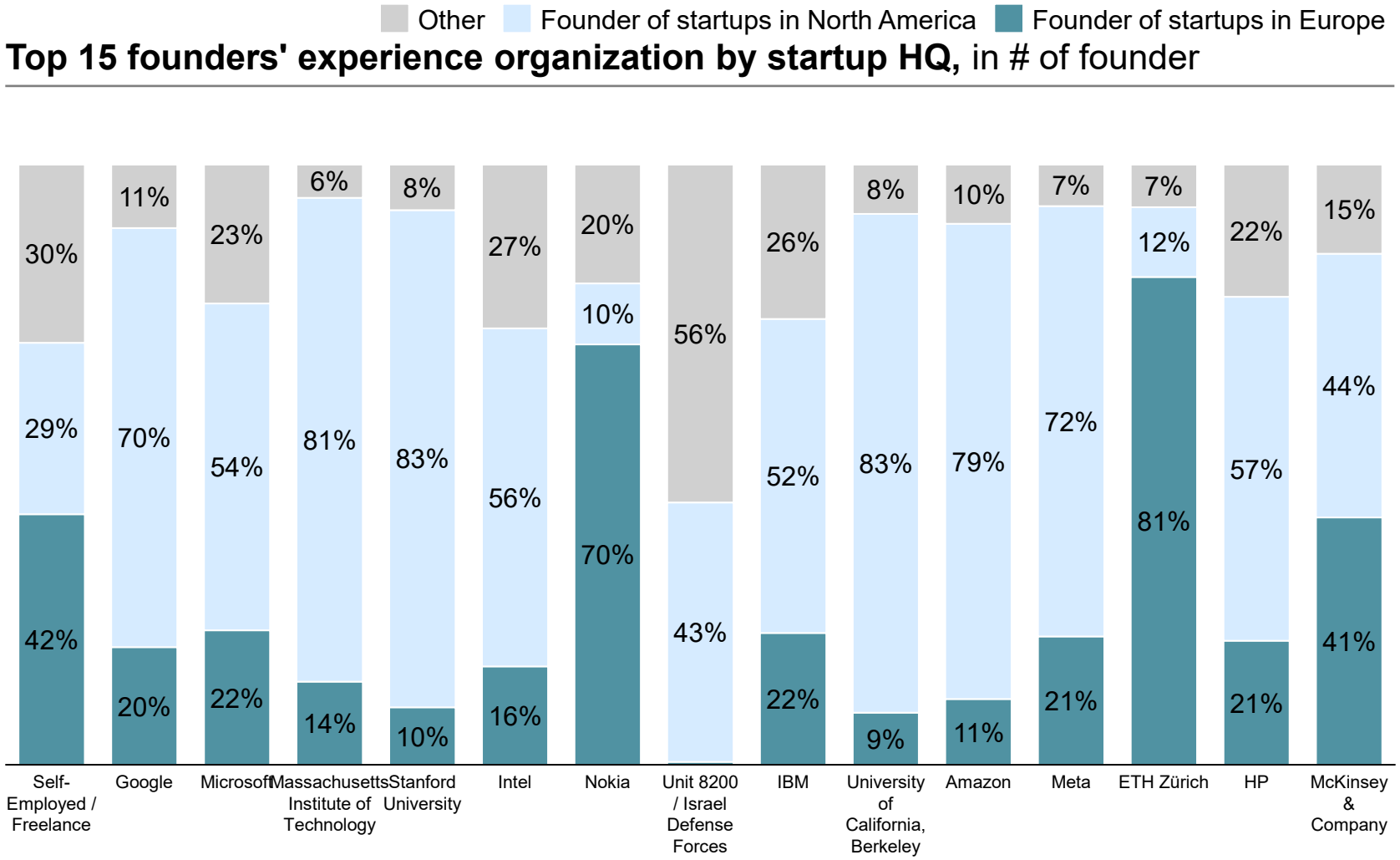
Nokia alone (217 founders) outranks every university, more European Deep Tech founders trace back to a single tech company than to ETH Zurich (155) or Cambridge (116), underscoring that large-scale tech layoffs are a powerful, underappreciated source of entrepreneurial talent

9 of the top 15 feeder organizations are universities or research institutions, yet average tenure there is only 2.7-4.0 years, suggesting founders spin out rapidly post-degree rather than building deep industry experience first

"In Europe, academic institutions are the primary drivers of spin-offs. Established industrial companies, particularly those currently undergoing layoffs, must create incentives for entrepreneurship, following the example set by Nokia."

Jannik Nolden
PhD Student, TUM

Europe must build its own corporate spinout pipelines around Nokia-ETH Zürich-style retention anchors



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Insights

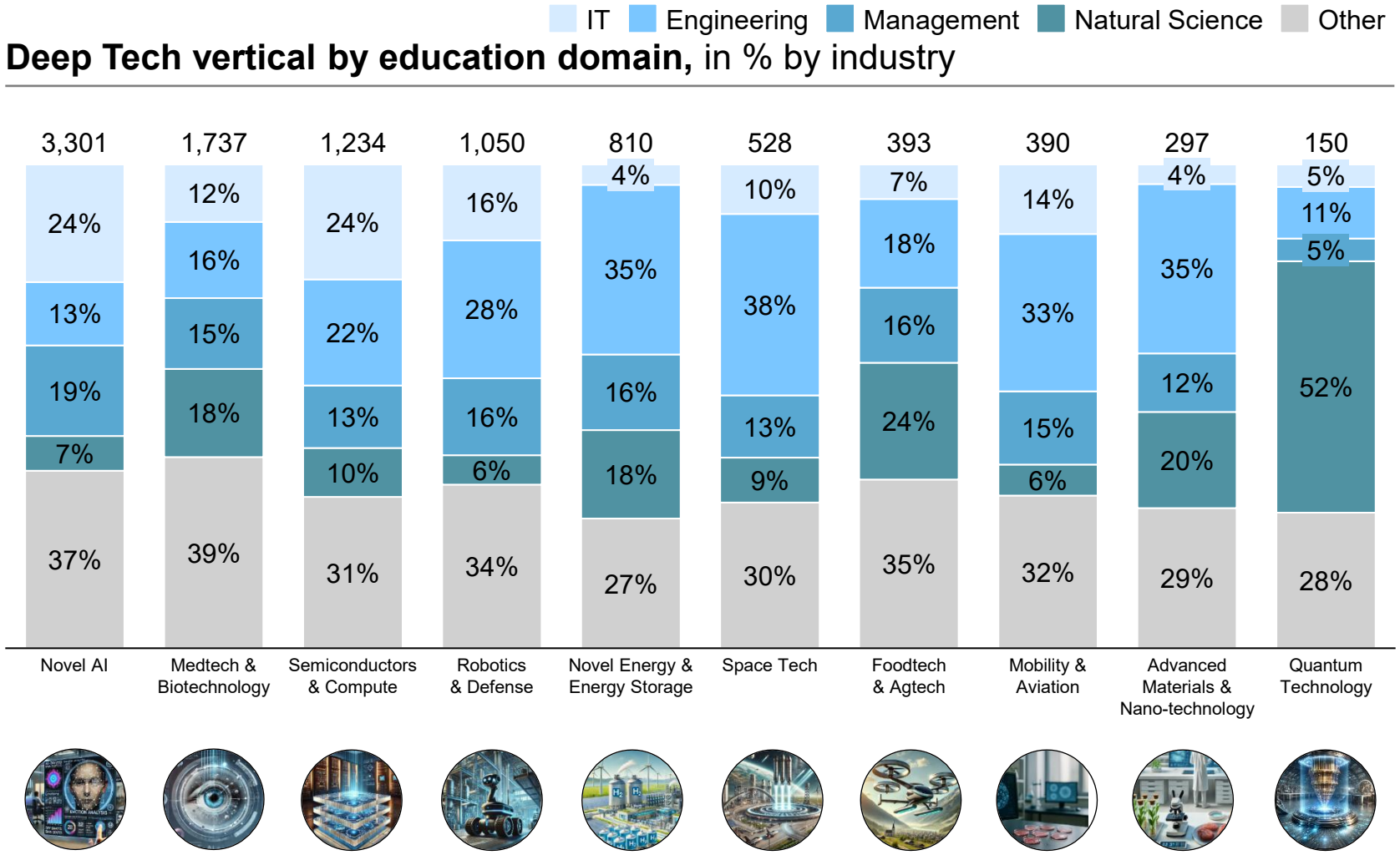
Google produces 459 Deep Tech founders but only 20% build in Europe, meaning the US tech talent machine is not a shared global resource, it almost exclusively recirculates into the North American ecosystem

"I believe one reason Europe lacks more founder factories is a combination of weak incentives, excessive bureaucracy, difficult tax structures and a persistent fear of failure. In many ways, Europe still has a culture of skepticism rather than one of building. We often make it unnecessarily hard for ambitious people to create companies, take risks and move quickly."

Jasmin Güngör
General Partner, Onsight Ventures

IT-first profiles for AI, Natural Science PhDs for Quantum, and hybrid profiles for Energy and Materials

Deep Tech vertical by education domain, in % by industry



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Insights

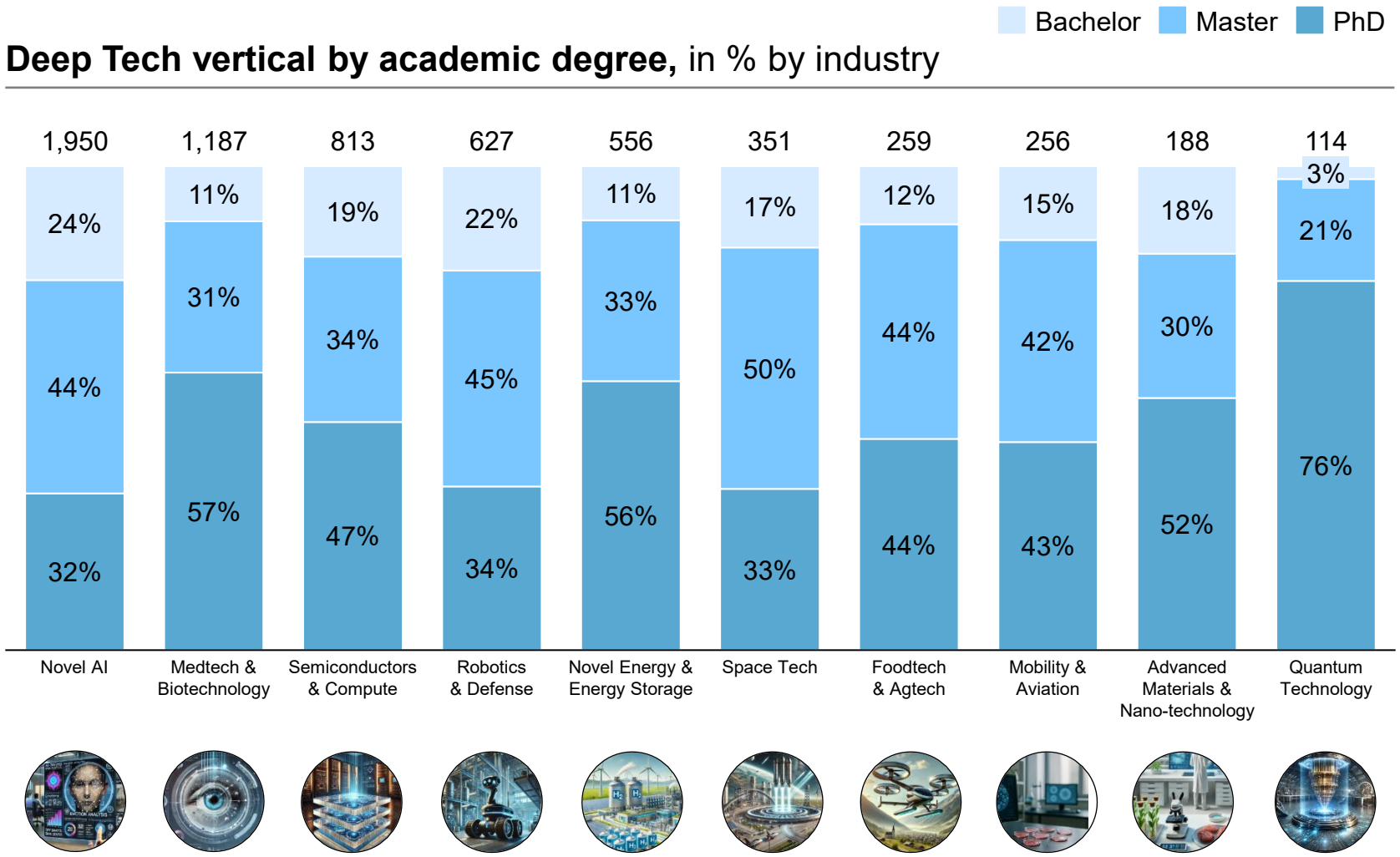
Quantum Technology's 43% Natural Science concentration is the highest of any sector, confirming it is still a science-push rather than market-pull domain, investors and ecosystem builders should expect longer commercialization cycles and design support programs accordingly, not apply standard SaaS-era acceleration frameworks

"We should be aware of the extreme talent scarcity in quantum technologies. There is already a fierce global competition for highly specialized talent across academia, corporates and startups. Industry insiders estimate that only around 15,000 people worldwide are capable of programming quantum computers, representing a tiny fraction of the global developer base."

Jasmin Güngör
General Partner, Onsight Ventures

PhD intensity varies 4x, from 76% in Quantum to 21% in AI, signalling verticals's distance from commercialization

Deep Tech vertical by academic degree, in % by industry



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Insights

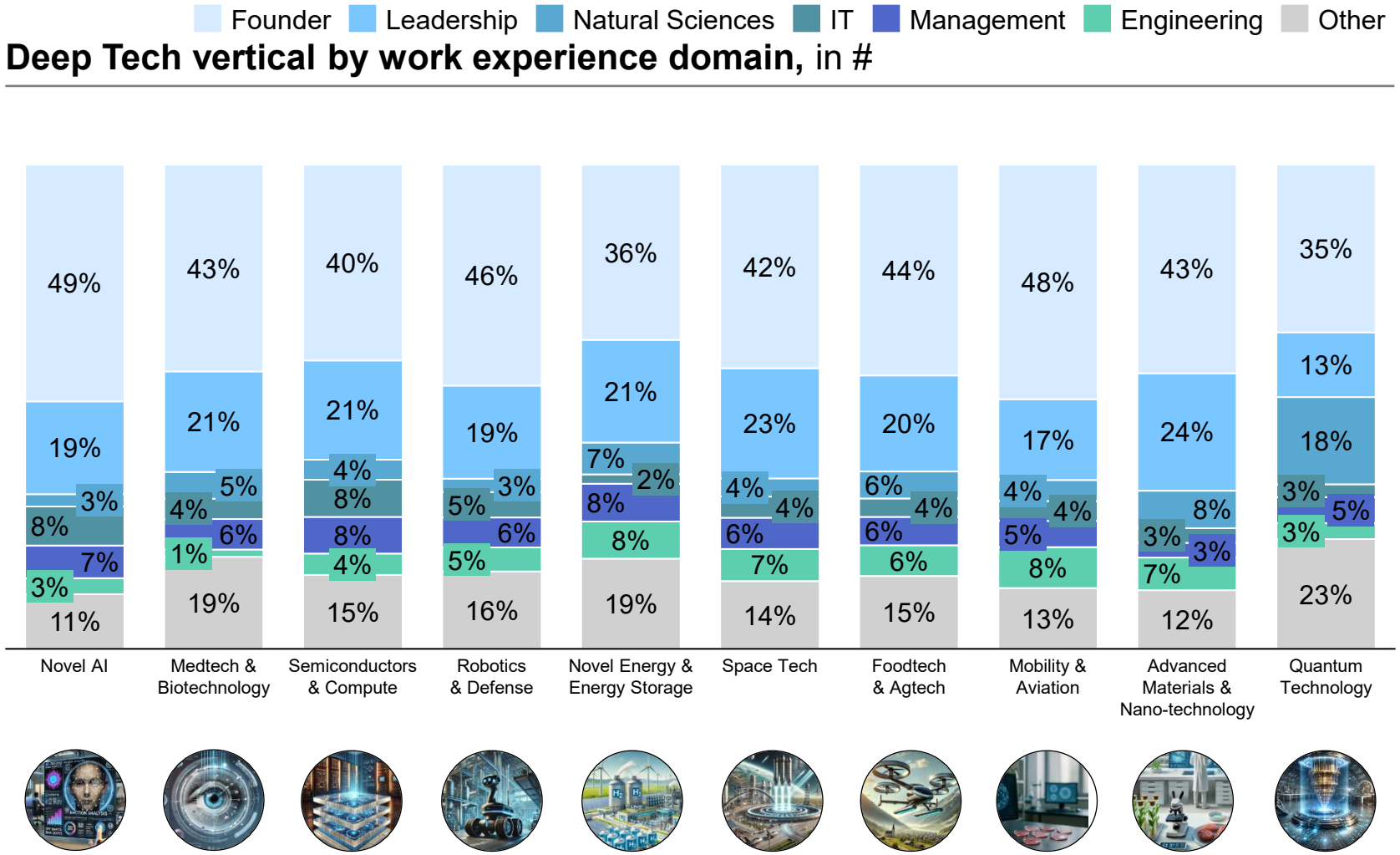
Quantum Technology's 76% PhD rate is ~4x that of Novel AI (21%), confirming that the sector is still anchored in research institutions and has not yet undergone the commercialization transition, investors need patient capital models, and accelerators need scientific advisory boards, not growth hackers

Novel AI's 32% Bachelor rate, reflects its accessibility as a founding domain, meaning barriers to entry are low but differentiation is increasingly difficult; investors should weight team depth and proprietary data/infrastructure moats

"The exceptionally high share of PhD founders in quantum technologies signals a field still anchored in scientific discovery rather than technology commercialization."

Prof. Dr. Theresa Treffers
Associate Professor, TUM

Prior founding experience is the #1 work background across every Deep Tech vertical



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Insights

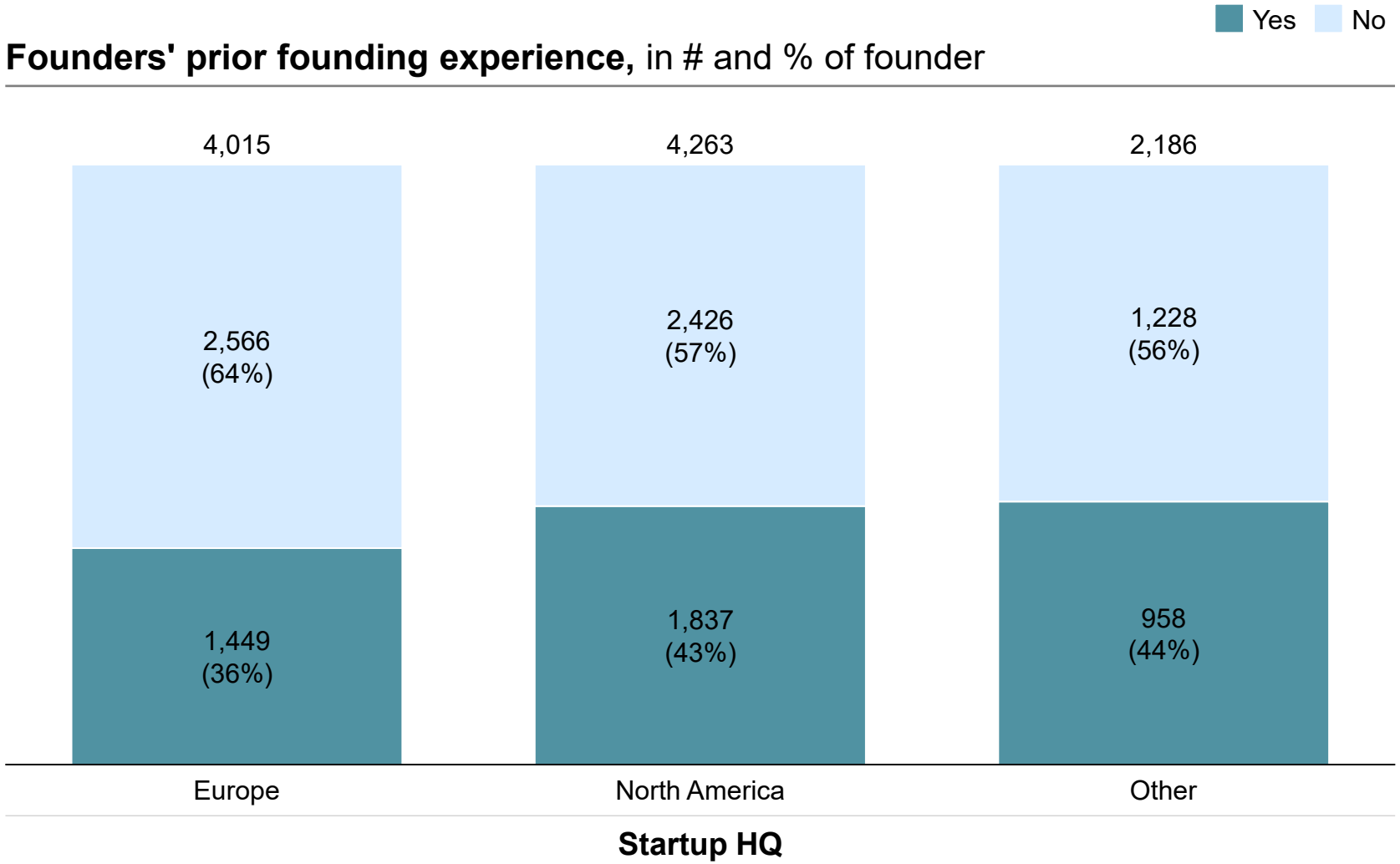
Prior founding experience leads in all 10 sectors without exception, meaning the best predictor of a Deep Tech founder is having been one before

Founder + leadership together exceed 50% across every vertical, yet most university entrepreneurship programs are designed for students with no prior professional experience, the data suggests the highest-ROI intervention is post-corporate founder programs targeting mid-career operators

"Deep Tech may be a major opportunity for Europe. AI, robotics and frontier engineering could allow Europe to become a leader in industrial productivity again. What is needed now is less bureaucracy and less politically induced crisis management, so corporates can focus on innovation again."

Jasmin Güngör
General Partner, Onsight Ventures

Only 36% of European Deep Tech founders have prior founding experience, versus 43% in North America



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Insights

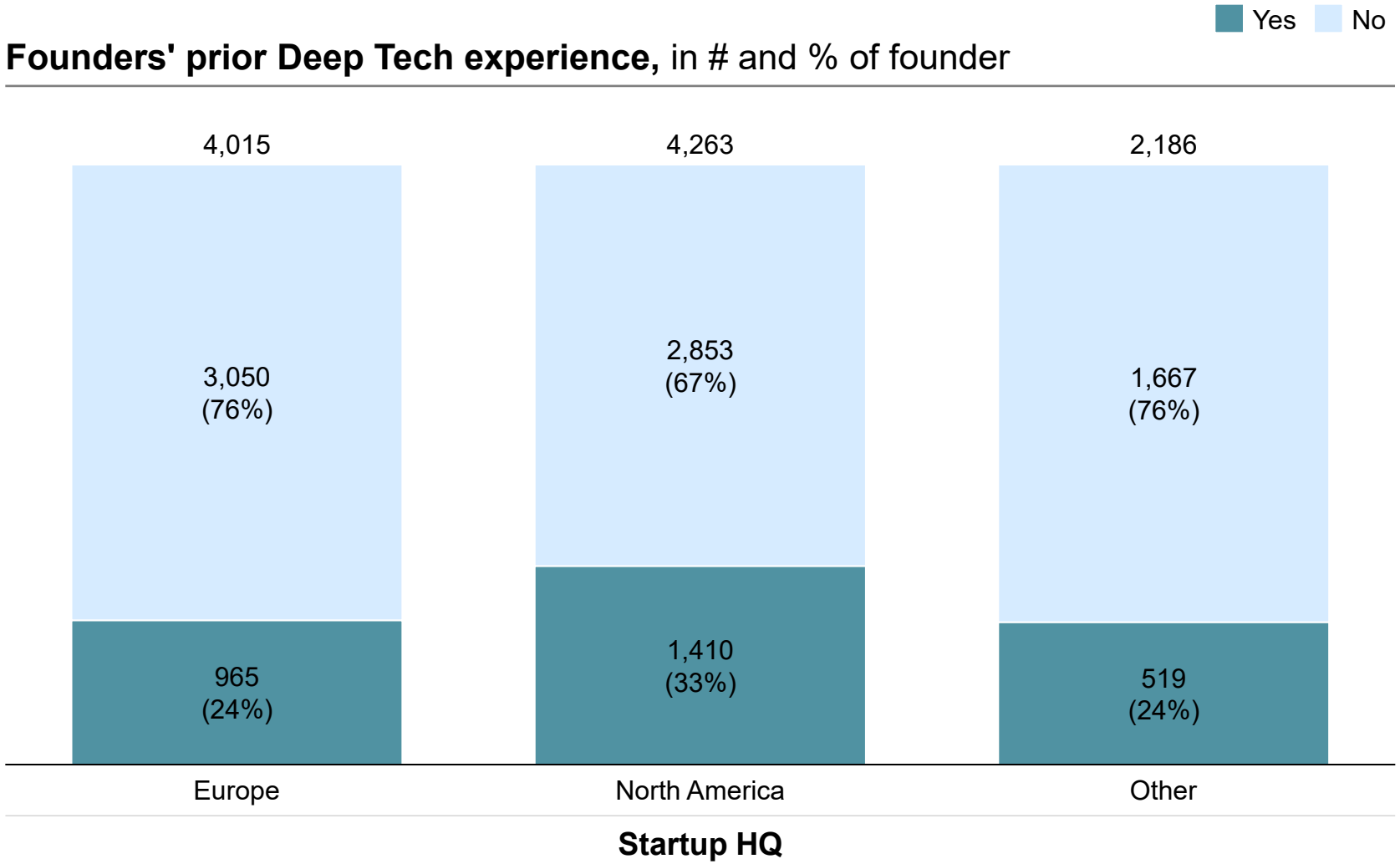
The low recycling rate stems from structural barriers: longer time-to-exit in Europe, fewer IPO pathways, and a cultural stigma around failure, none of which are addressed by simply training more first-time founders. Policy levers must target the full founder lifecycle, including M&A tax treatment, secondary share liquidity, and founder immigration schemes

"Other" regions (44%) outperform Europe on serial founder density

"Previous Deep Tech startup experience is also a limiting factor in hiring for many key positions in the growth phase. Candidates that combine a startup mindset with actual experience in scaling hardware companies or plant engineering are hard to find on the European market."

Gregor Haidl
Partner, HTGF

A pronounced Deep Tech experience gap risks weakening Europe's competitiveness in high-complexity innovation



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Insights

In North America 33% of founders have Deep Tech experience, reflecting strong capability accumulation in complex, technology-driven ventures

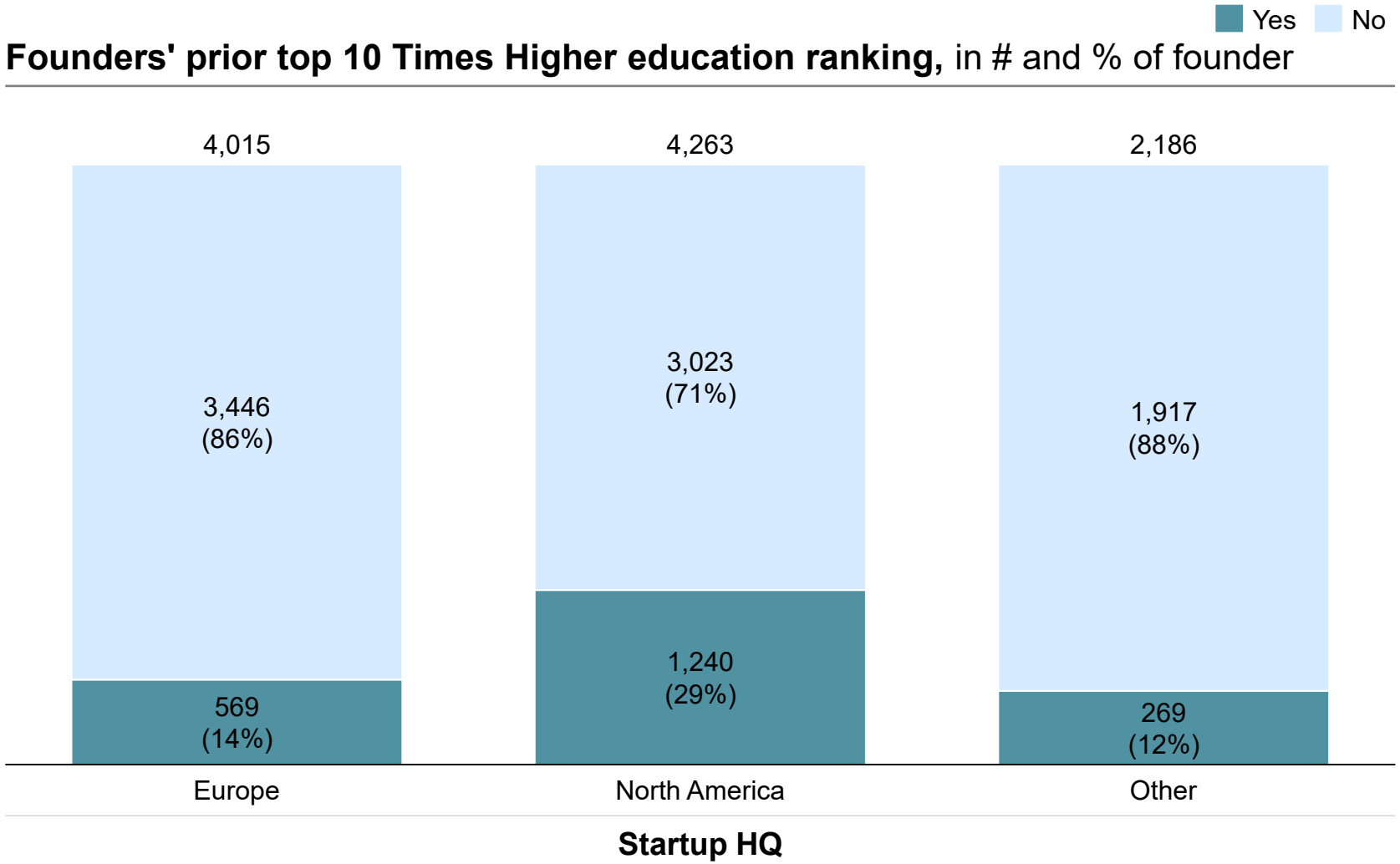
Europe (and "Other" regions) show a lower share of founders with prior Deep Tech experience (24%), indicating a limited pool of specialized entrepreneurial expertise

The gap highlights North America's structural advantage in building and retaining Deep Tech talent

"We see strong technical teams across Europe, but scaling them into global companies requires earlier access to growth capital and experienced operators."

Dr. Anne Hinze
Investment Manager, DTCF

29% of North American Deep Tech founders attended a top-10 university, versus only 14% in Europe



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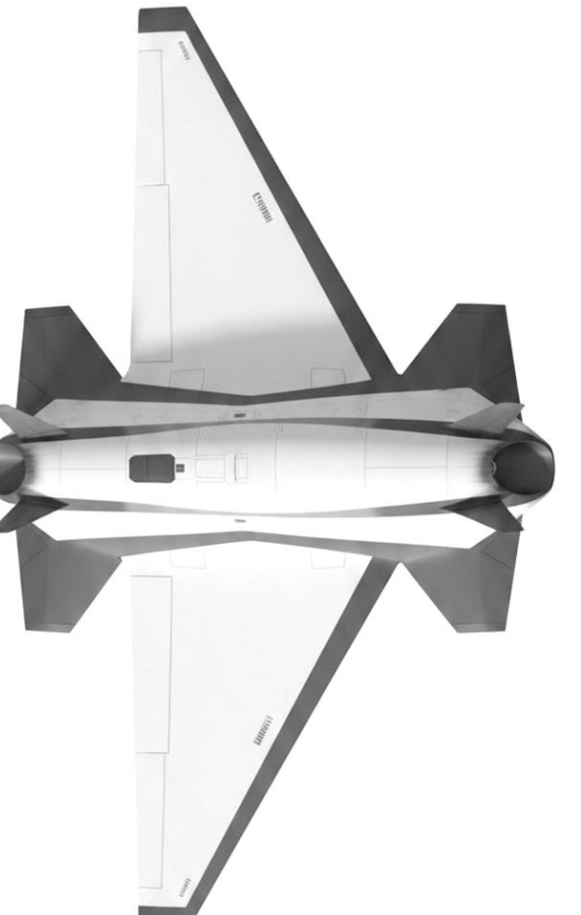
Insights

North America converts top-university graduates into founders at ~2x the rate of Europe (29% vs. 14%), despite Europe housing world-class research universities, the bottleneck is the entrepreneurial infrastructure

86% of European founders did not attend a top-10 university, which is not inherently a problem, but combined with the low serial founder rate and limited follow-on capital, it suggests Europe's broader founder base lacks the network density and signaling capital that elite alumni networks provide in North America

"North American deep tech founder teams more frequently originate from top-10 universities. The academic premium has a significant influence on capital access through network effects."

Jannik Nolden
PhD Student, TUM



Contents

Deep Tech success

Two or more founders are required as a base for success

Founders sharedness of technical education in engineering, IT, or natural sciences, is related with success

- **Top 10 university attendance accelerates** this effect

Management experience is related to success up to a maximum of 18 years, after which the effect diminishes

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Engineering experience is related to success up to a maximum between 5 and 6 years, after which the effect diminishes

- **Deep tech industry experience accelerates** this effect

Management education is related with less success up to a minimum between 2 and 3 years, after which the effect diminishes

Deep Tech startup success is most commonly measured through four interconnected metrics

Raised capital

Total funding amount, number of funding rounds, and funding stage progression from seed through Series A/B are common quantitative success indicators in startup research

High capitalization provides strategic flexibility and acts as a positive signal to subsequent investors

Valuation

Post-money valuation metrics are a crucial component in predictive startup models, reflecting the market's valuation at specific funding stages

High valuations are associated with investor reputation, serving as a quality signal for startups

Follow-on funding and investor endorsement contribute to valuation growth

Exits

Exit outcomes are the most direct measure of startup success in empirical literature

A broader success definition includes IPOs, acquisitions and mergers

High-flyer

At least one of the following criteria (~2% of all Deep Tech startups):

Last-financing valuation exceeding $1bn (unicorn threshold)

Completion of an IPO

Reported annual revenue of at least $100mn

Source: Source: 1) Te, Y.-F., Wieland, M., Frey, M., Pyatigorskaya, A., Schiffer, P., & Grabner, H. (2023). Making it into a successful series A funding: An analysis of Crunchbase and LinkedIn data. *The Journal of Finance and Data Science*, *9*, 100099. https://doi.org/10.1016/j.jfds.2023.100099; 2) Park, J., Choi, S., & Feng, Y. (2024). Predicting startup success using two bias-free machine learning: Resolving data imbalance using generative adversarial networks. *Journal of Big Data*, *11*(122), 1–20. https://doi.org/10.1186/s40537-024-00993-8; 3) Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, *9*(5), 371–395. https://doi.org/10.1016/0883-9026(94)90013-2; 4) Hsairi, L. (2024). Deep Learning to Predict Start-Up Business Success. *International Journal of Advanced Computer Science and Applications*, *15*(3), 356–361. https://doi.org/10.14569/IJACSA.2024.0150336; 5) Kim, J., Kim, H., & Geum, Y. (2023). How to succeed in the market? Predicting startup success using a machine learning approach. *Technological Forecasting & Social Change*, *193*, 122614. https://doi.org/10.1016/j.techfore.2023.122614; 6) Maarouf, A., Feuerriegel, S., & Pröllochs, N. (2025). A fused large language model for predicting startup success. *European Journal of Operational Research*, *322*(1), 198–214. https://doi.org/10.1016/j.ejor.2024.09.011

Larger founding teams and strong IP portfolios drive higher valuations and raised capital

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital	Valuation	Exits	High-flyer
++ Number of **founder**	++ Number of **founder**	++ Number of **founder**	+ Number of **founder**
+ Startup **founding year**	++ Startup **founding year**	++ Startup **founding year**	Startup **founding year**
++ Number of **patents**	++ **Number of patents**	+ Number of **patents**	+ Number of **patents**
++ **HQ** (Asia, Europe, North America, Oceania, South America)	**HQ** (Asia, Europe, North America, Oceania, South America)	++ **HQ** (Asia, Europe, North America, Oceania, South America)	**HQ** (Asia, Europe, North America, Oceania, South America)
++ **Deep Tech vertical** (e.g., Food & Agtech, Medtech & Biotech, Mobility & Aviation, AI, Energy & Energy Storage, Quantum Technology)	**Deep Tech vertical** (e.g., Food & Agtech, Medtech & Biotech, Mobility & Aviation, AI, Energy & Energy Storage, Quantum Technology)	**Deep Tech vertical** (e.g., Food & Agtech, Medtech & Biotech, Mobility & Aviation, AI, Energy & Energy Storage, Quantum Technology)	**Deep Tech vertical** (e.g., Food & Agtech, Medtech & Biotech, Mobility & Aviation, AI, Energy & Energy Storage, Quantum Technology)
++ **High Tech Exports**	++ **High Tech Exports**	− **High Tech Exports**	+ **High Tech Exports**
+ **GDP per capita**	++ **GDP per capita**	**GDP per capita**	− **GDP per capita**

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Deep Tech startups with more founders and patents, especially in major economic regions like North America or Europe, achieve higher valuations and raise more capital

Valuation-boosting factors, such as industry-specific Deep Tech, do not significantly influence exits

High high-tech exports in a country negatively correlate with exits, indicating **challenging global market conditions for acquisitions or IPOs**

"Deep Tech founders should clearly communicate how much research capital has already flowed into a technology and its underlying patent portfolio before the company is even founded. In Deep Tech, a substantial IP base and years of prior research can create real substance from day one."

Jasmin Güngör
General Partner, Onsight Ventures

Technical education and management experience in the founding team are primary drivers of Deep Tech success

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital	Valuation	Exits	High-flyer
++ Founding Team average **Technical Education**	++ Founding Team average **Technical Education**	++ Founding Team average **Technical Education**	Founding Team average **Technical Education**
− Founding Team average **Management Education**	Founding Team average **Management Education**	− Founding Team average **Management Education**	Founding Team average **Management Education**
Founding Team average **Technical Experience**	Founding Team average **Technical Experience**	Founding Team average **Technical Experience**	− Founding Team average **Technical Experience**
++ Founding Team average **Management Experience**	++ Founding Team average **Management Experience**	Founding Team average **Management Experience**	Founding Team average **Management Experience**

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Average technical education in a founding team strongly predicts successful capital raising, valuation, and exits. Management experience boosts capital and valuation

Conversely, higher management education correlates with lower capital-raising ability and does not significantly improve valuation or exit success. Technical experience shows no significant effect on any success metric

"Great Deep Tech teams combine technological excellence with hands-on founding/management experience in the start-up world. Early-stage startups are a breed of their own. We often observe that formal management education & experience in larger corporations is only of limited use."

Gregor Haidl
Partner, HTGF

Deep Tech success hinges on a blend of specific STEM education fields and management experience

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital	Valuation	Exits	High-flyer
−− **Management** Education	**Management** Education	**Management** Education	**Management** Education
++ **Engineering** Education	**Engineering** Education	++ **Engineering** Education	**Engineering** Education
Health Education	**Health** Education	**Health** Education	**Health** Education
++ **IT** Education	++ **IT** Education	+ **IT** Education	**IT** Education
++ **Natural Sciences** Education	++ **Natural Sciences** Education	+ **Natural Sciences** Education	**Natural Sciences** Education
++ **Management** Experience	++ **Management** Experience	**Management** Experience	**Management** Experience
Engineering Experience	**Engineering** Experience	**Engineering** Experience	**Engineering** Experience
Health Experience	**Health** Experience	**Health** Experience	**Health** Experience
IT Experience	**IT** Experience	**IT** Experience	**IT** Experience
Natural Sciences Experience	**Natural Sciences** Experience	**Natural Sciences** Experience	− **Natural Sciences** Experience

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Teams with strong management and backgrounds in IT and Natural Sciences excel at raising capital and increasing valuations

Formal management education negatively correlates with capital raised

Management experience impacts early metrics but not exit outcomes

"From an investor perspective, the strongest predictor of success is a balanced team that can translate technical innovation into scalable business models."

Dr. Anne Hinze
Investment Manager, DTCF

Natural Sciences education unlocks capital at every stage, but career scientists become a Series B liability

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital

Early stage (Pre-Seed, Seed, Series A)	**Growth stage** (Series B+)
−− **Management** Education	**Management** Education
Engineering Education	**Engineering** Education
Health Education	**Health** Education
++ **IT** Education	**IT** Education
++ **Natural Sciences** Education	++ **Natural Sciences** Education
+ **Management** Experience	**Management** Experience
Engineering Experience	**Engineering** Experience
Health Experience	**Health** Experience
IT Experience	**IT** Experience
Natural Sciences Experience	−− **Natural Sciences** Experience

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Early-stage investors strongly favor IT, Natural Sciences Education and hands-on management experience, while formal management education negatively impacts initial fundraising

Deep Tech startup growth requires deep natural sciences education and expertise, while experience in natural sciences reduces funding received in the growth stage

"Investors in later-stage rounds increasingly look beyond pure scientific excellence. Many academic founders spend years optimizing technology before deeply engaging with customers and markets. As companies scale, investors often expect leadership teams that combine frontier research with commercial, operational and customer-facing capabilities."

Jasmin Güngör
General Partner, Onsight Ventures

Natural Sciences education secures funding and high valuations, while experience levels demand calibration

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital

−− **Management** Education (*U-shape: Minimum at 2.5 years*)

Engineering Education

Health Education

IT Education

++ **Natural Sciences** Education (*The more the better*)

++ **Management** Experience

++ **Engineering** Experience (*Inverted U-shape: Maximum at 6.4 years*)

Health Experience

IT Experience

Natural Sciences Experience

Valuation

−− **Management** Education (*U-shape: Minimum at 1.9 years*)

Engineering Education

Health Education

IT Education

++ **Natural Sciences** Education (*The more the better*)

++ **Management** Experience (*Inverted U-shape: Maximum at 18.3 years*)

\+ **Engineering** Experience (*Inverted U-shape: Maximum at 5.3 years*)

Health Experience

IT Experience

Natural Sciences Experience

Exits

− **Management** Education (*U-shape: Minimum at 2.2 years*)

\+ **Engineering** Education (*The more the better*)

Health Education

IT Education

Natural Sciences Education

− **Management** Experience

Engineering Experience

Health Experience

IT Experience (*U-shape: Minimum at 6.3 years*)

Natural Sciences Experience

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Startup valuations are best driven by seasoned Management experience and mid-level Engineering experience, maximizing at 18.3 years and 5.3 years respectively before returns diminish

"Winning Deep Tech companies are built by teams that combine scientific depth with execution capability. Technology alone is never enough."

Dr. Torsten Löffler
Investment Director, DTCF

"From an investor perspective, the strongest predictor of success is a balanced team that can translate technical innovation into scalable business models."

Dr. Anne Hinze
Investment Manager, DTCF

Teams with management and engineering experience excel at fundraising

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital	Valuation	Exits	High-flyer
Management Edu x **Engineering Edu**	Management Edu x **Engineering Edu**	Management Edu x **Engineering Edu**	Management Edu x **Engineering Edu**
Management Edu x **Health Edu**	Management Edu x **Health Edu**	Management Edu x **Health Edu**	Management Edu x **Health Edu**
− Management Edu x **IT Edu**	Management Edu x **IT Edu**	− Management Edu x **IT Edu**	Management Edu x **IT Edu**
Management Edu x **Natural Sciences Edu**	Management Edu x **Natural Sciences Edu**	Management Edu x **Natural Sciences Edu**	Management Edu x **Natural Sciences Edu**
+ Management Exp x **Engineering Exp**	Management Exp x **Engineering Exp**	Management Exp x **Engineering Exp**	Management Exp x **Engineering Exp**
Management Exp x **Health Exp**	− Management Exp x **Health Exp**	Management Exp x **Health Exp**	Management Exp x **Health Exp**
Management Exp x **IT Exp**	Management Exp x **IT Exp**	Management Exp x **IT Exp**	Management Exp x **IT Exp**
Management Exp x **Natural Sciences Exp**	Management Exp x **Natural Sciences Exp**	Management Exp x **Natural Sciences Exp**	− Management Exp x **Natural Sciences Exp**

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

The combination of management experience and engineering experience shows a significant positive correlation with the ability to raise capital, indicating strong investor confidence in teams with this specific blend of practical skills

A background in management education paired with IT education is negatively correlated with both capital raised and successful exits, suggesting a potential mismatch with market expectations or investor preferences

"The best teams are usually technical enough to build and commercial enough to scale."

Jasmin Güngör
General Partner, Onsight Ventures

Technical degrees unlock the value of management experience in early rounds

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

Raised capital

Early stage (Pre-Seed, Seed, Series A)

	Technical Edu x **Management Exp**
	Technical Edu x **Engineering Exp**
	Technical Edu x **Health Exp**
	Technical Edu x **IT Exp**
	Technical Edu x **Natural Sciences Exp**
−−	Management Exp x **Management Edu**
++	Management Exp x **Engineering Edu**
	Management Exp x **Health Edu**
++	Management Exp x **IT Edu**
++	Management Exp x **Natural Sciences Edu**

Growth stage (Series B+)

	Technical Edu x **Management Exp**
	Technical Edu x **Engineering Exp**
	Technical Edu x **Health Exp**
	Technical Edu x **IT Exp**
	Technical Edu x **Natural Sciences Exp**
−−	Management Exp x **Management Edu**
	Management Exp x **Engineering Edu**
	Management Exp x **Health Edu**
	Management Exp x **IT Edu**
	Management Exp x **Natural Sciences Edu**

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Early-stage investors highly reward cross-disciplinary profiles, heavily funding founders who pair practical management experience with formal education in Engineering, IT, or Natural Sciences

A strictly management-focused background acts as a universal red flag, as combining management education with management experience strongly penalizes capital raised in the early and growth stages

"The combination of practical management experience with academic backgrounds in engineering, IT, and natural sciences is especially beneficial in the early stage for securing funding. The blend of hands-on management experience and academic technical excellence is the optimal composition for deep tech founder teams."

Jannik Nolden
PhD Student, TUM

Top10 uni and Deep Tech experience are universal drivers of success

−− Strong negative significant effect − Negative significant effect + Positive significant effect ++ Strong positive significant effect

	Raised capital	Valuation	Exits	High-flyer
	Management Education x Top 10 university	**Management Education** x Top 10 university	**Management Education** x Top 10 university	**Management Education** x Top 10 university
++	**Engineering Education** x Top 10 university	**Engineering Education** x Top 10 university	**Engineering Education** x Top 10 university	**Engineering Education** x Top 10 university
	Health Education x Top 10 university	**Health Education** x Top 10 university	**Health Education** x Top 10 university	**Health Education** x Top 10 university
	IT Education x Top 10 university	**IT Education** x Top 10 university	**IT Education** x Top 10 university	**IT Education** x Top 10 university
	Natural Sciences Education x Top 10 university	**Natural Sciences Education** x Top 10 university	**Natural Sciences Education** x Top 10 university	**Natural Sciences Education** x Top 10 university
	Management Experience x Deep Tech industry	**Management Experience** x Deep Tech industry	**Management Experience** x Deep Tech industry	**Management Experience** x Deep Tech industry
++	**Engineering Experience** x Deep Tech industry	++ **Engineering Experience** x Deep Tech industry	**Engineering Experience** x Deep Tech industry	\+ **Engineering Experience** x Deep Tech industry
	Health Experience x Deep Tech industry	**Health Experience** x Deep Tech industry	**Health Experience** x Deep Tech industry	\+ **Health Experience** x Deep Tech industry
	IT experience x Deep Tech industry	**IT experience** x Deep Tech industry	**IT experience** x Deep Tech industry	**IT experience** x Deep Tech industry
	Natural Sciences Experience x Deep Tech industry	**Natural Sciences Experience** x Deep Tech industry	**Natural Sciences Experience** x Deep Tech industry	**Natural Sciences Experience** x Deep Tech industry

Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Despite the overall strong advantage of a Top 10 university degree, the compounding fundraising premium is captured by Engineering founders

Broad Deep Tech experience strongly drives baseline success, but pairing it specifically with Engineering expertise creates a massive multiplier effect across capital raised, valuation, and high-flyer potential

"First time founders do exist in Deep Tech. However, vertical experience in Deep Tech really helps to understand the complex market needs, customer problems but also the technological state-of-the-art. It eventually leads to products with a better product-market fit."

Gregor Haidl
Partner, HTGF

Shared technical competency is the primary driver of fundraising and exits

Strong negative significant effect | Negative significant effect | + Positive significant effect | ++ Strong positive significant effect

Raised capital	Valuation	Exits
Management competency sharedness	**Management** competency sharedness	**Management** competency sharedness
++ **Technical** competency sharedness	**Technical** competency sharedness	+ **Technical** competency sharedness
Entrepreneurial competency sharedness	**Entrepreneurial** competency sharedness	**Entrepreneurial** competency sharedness
Management competency depth	**Management** competency depth	− **Management** competency depth
+ **Technical** competency depth	**Technical** competency depth	**Technical** competency depth
+ **Entrepreneurial** competency depth	+ **Entrepreneurial** competency depth	**Entrepreneurial** competency depth

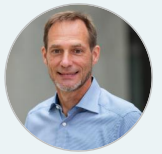
Regression model specifications: *Models are estimated via OLS with HC1 heteroskedasticity-robust standard errors; all numeric regressors are winsorized at the 1st and 99th percentiles (quantile type 7) and z-scored prior to estimation, so coefficients reflect standardized effect sizes. Continuous success metrics are log-transformed, Models are calculated with R studio.*

Insights

Shared technical expertise among founders is essential for securing capital and achieving a successful exit. Entrepreneurial skill depth also drives fundraising and higher valuations

Contrary to intuition, deep management skills in a single founder do not improve fundraising or valuation and may hinder exit success, indicating that traditional management approaches may conflict with the agility needed for a Deep Tech exit

"Winning Deep Tech companies are built by teams that combine scientific depth with execution capability. Technology alone is never enough."



Dr. Torsten Löffler
Investment Director, DTCF

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Implications for …

1. Founder
2. Investor
3. Educator
4. Policymaker

1. For founders: the team you build determines whether your science becomes a company

1.1 The competency gap that kills Deep Tech startups isn't technical it is the lack of focus on management experience

Shared technical competency across co-founders is the primary driver of both capital raised and exits, not depth in a single founder. Founding teams combining management experience with engineering education show a strong positive effect on capital raised, while the inverse management education paired with management experience is a negative predictor and functions as an investor red flag at both early and growth stages.

Practical implication: Before scaling, Deep Tech founders must deliberately practice delegation by assigning real decisions outside their technical domain to others. When hiring, prioritize people with entrepreneurial execution experience, and evaluate both personal fit (shared values and goals) and functional fit (ability to work across expert silos).

1.2 The serial founder gap is structural, not cultural

European founders carry a compounding structural disadvantage. Only 36% of European Deep Tech founders have prior founding experience, against 43% in North America, a 6-percentage-point gap that shows investors systematically price in, particularly at early stages where cross-disciplinary profiles with demonstrated execution are heavily rewarded. The average first-time European Deep Tech founder enters with both less entrepreneurial and less domain-specific credentialing than their North American counterpart, leaving them at a double disadvantage.

Practical implication: Founders who cannot signal serial entrepreneurship must overweight their technical education, particularly Natural Sciences and Engineering degrees from high-ranked institutions, where the effect on capital raised is described as "the more, the better" and must proactively recruit at least one co-founder with a verifiable founding track record, even at meaningful equity dilution, rather than going to market with technically strong but entrepreneurially thin teams.

1.3 Series A to B is the defining execution window

The valley of death in European Deep Tech is the Series A to Series B conversion, where European startups succeed at 10% against 24% in North America. This is not a funding volume gap: European Series B rounds average $46mn, comparable to North America's $63mn. The bottleneck is investor conviction, and that conviction is built on commercial evidence. European founders must arrive at their Series A with early revenue signals and customer validation, the data shows 22% of European startups achieve revenue up to $10mn (versus 14% in North America), suggesting European founders are commercially precocious in early stages.

Practical implication: Patents carry a strong positive effect on both capital raised and valuation, yet the median number of patents per European Deep Tech startup is effectively zero. Founders should treat IP filing as a simultaneous track running from the first day of technical development, both as an asset and as a credentialing signal to growth-stage investors.

2. For investors: the returns are proven, but the architecture is broken

2.1 European Deep Tech is systematically underpriced

The fundamental market inefficiency is this: Europe hosts 6,100 Deep Tech startups, the largest regional ecosystem globally, surpassing North America's 4,600, yet captures only 17% of total global Deep Tech funding ($92.5bn versus $337.5bn). Europe leads North America in Novel Energy & Energy Storage ($36.6bn versus $29.1bn), holds comparable positions in Quantum Technology and Medtech/Biotech, and produces more Master's and PhD founders in aggregate than any other region. The structural cause is a capital market distortion: European institutional early-stage support, is trapping companies in the accelerator phase rather than propelling them through it. Where North American deep tech startups convert early backing into demonstrable traction. scarce when these companies eventually need it.

Practical implication: A persistent opportunity exists in the $25-100M bracket, where North American startups have nearly double the representation of their European peers, despite underlying quality at that stage. An investor willing to lead European growth rounds operates with significantly less competition than their North American equivalent.

2.2 Rewrite the founder screening framework

Management education is a negative predictor of capital raised; management experience is a strong positive predictor. Engineering education paired with Deep Tech industry experience creates a multiplicative effect on capital raised, valuation, and exit probability. This finding should directly reprogram how European investors structure their due diligence scorecards.

Practical implication: Investor should be screening for: (1) a co-founder with postgraduate technical education (Engineering, IT, or Natural Sciences, “the more the better”); (2) a co-founder with hands-on management experience in operational roles, maximizing up to approximately 18.3 years before returns diminish; and (3) Engineering experience in Deep Tech industry context peaking at roughly 5-6 years. Founding teams where these credentials overlap, i.e., the same person holds management experience and a technical degree, are the highest-performing configuration. Early-stage investors should heavily reward cross-disciplinary profiles: Natural Sciences education and IT education combined with management experience are the strongest early-round signals, with the reverse configuration, management education at all, serving as a systematic negative marker.

2.3 Build Consortium Capacity at Growth Stage

The deepest structural problem in European Deep Tech is the absence of investors capable of leading growth rounds, setting terms, and building the large syndicates that late-stage Deep Tech requires. At Series D+, North American deals average 13.5 investors per round versus Europe's 8.4. This gap in syndicate-building capacity directly suppresses the Series A to B conversion rate (10% Europe versus 24% North America) and explains why European startups with viable technologies fail to scale. European VCs increasingly hesitate to commit to larger, later rounds, deterred by limited exit options and a widespread belief that Deep Tech's full market potential will not be realized on the continent, partly due to anticipated regulatory headwinds. Stockholm's performance, $25bn in Deep Tech funding from just 99 startups, is the operating proof-of-concept for what a functioning capital recycling flywheel produces: Spotify and Klarna exits continuously redistribute capital, network, and experienced operators back into the ecosystem, creating a compounding advantage. Munich is the next candidate: at $39M average funding per startup (versus $7mn in Berlin), it already demonstrates the capital concentration characteristics of a maturing hub.

Practical implication: Deliberately accelerate that flywheel, leading Series B and C rounds in Munich, Cambridge, and Paris, building co-investor networks that can match North American syndicate size at Series D+, and treating exit engineering (preparing portfolio companies for M&A or IPO) as a core portfolio management function.

3. For educators: the European Paradox is an institutional design failure, not a talent problem

3.1 Integrate operational commercialization into technical programs

Formal management education is negatively correlated with capital. What investors reward is management experience paired with technical depth. This creates a structural paradox at the heart of Germany's Deep Tech pipeline: the dominant founding team configuration, an engineering graduate who lacks commercial exposure paired with a business graduate who lacks technical fluency. The implication is to hardwire operational commercial experience into the training itself. Technical founders, particularly those emerging from elite programs at TUM and ETH Zurich, arrive with a high degree of self-conviction in their domain expertise, which is a structural asset that becomes a structural liability the moment market feedback contradicts the technical roadmap. EXIST grants fund teams through the highest-risk pre-revenue phase yet default to classical business education that have no demonstrated correlation with early-stage success, a mismatch, given that early-phase Deep Tech operates under a risk profile, decision cadence, and information environment categorically different from those a traditional business degree prepares someone for. The result is founding teams pulled in opposite directions: a business co-founder optimizing for structure and process, a technical co-founder optimizing for completeness, with no shared commercial objective bridging the two.

Practical implication: The technical universities should be studied for ecosystem density connecting students to industry operators and the cultural normalization of founding as a career outcome, a mindset shift from tech-only to tech-as-leverage through structured exposure to the consequences of commercial decisions. Mandatory customer discovery projects embedded in research group work from the second year of a Master's program; industry placements of 6-12 months where students operate inside commercial constraints; and live venture creation tracks where engineering students spend one semester building and pitching an actual company alongside their technical thesis. A missing track: talented students gaining real work experience inside strong early-stage startups not every first step needs to be founding something, since joining as an early employee or Founders Associate teaches the same startup fundamentals, often faster.

3.2 The PhD pipeline is Europe’s strategic asset

Europe's postgraduate pipeline is globally unmatched: 61% of Deep Tech founders hold Master's or PhD credentials, and European founders dominate both the Master's and PhD cohorts across the global dataset. In Quantum Technology, the most research-intensive segment, 76% of founders hold PhDs; in Medtech/Biotech, 42%. The Natural Sciences education effect on capital raised is described in the data as "the more, the better". Yet despite this postgraduate depth, Europe generates only 29% of global Deep Tech patents while hosting the largest startup ecosystem. The break in the chain occurs between laboratory output and commercialization: IP transfer from university to startup in Europe is slower, more bureaucratic, and less systematically supported than in North America. Critically, a large share of European IP and patents originates not in universities but in Research and Technology Organizations, Fraunhofer, VTT, TNO, and their peers, which must treat tech transfer as a core mandate: actively enabling spinoffs, offering founder-friendly licensing, and systematically matchmaking IP with external entrepreneurs.

Practical implication: European research universities, and RTOs equally, must treat this as an institutional priority equivalent to research excellence itself. The specific interventions that matter: mandatory IP literacy modules in all doctoral programs from year one; streamlined university-to-startup licensing terms (pre-negotiated, founder-friendly term sheets rather than case-by-case negotiation); and dedicated spinout acceleration tracks for PhD candidates in Engineering and Natural Sciences, modeled on the Entrepreneur First program which appears in the top-15 European experience organizations by founder count, that takes researchers directly from completion to founding without the gap year of uncertainty that currently causes many to default to industry employment.

4. For policymakers: the gap is structural, the fixes are known, and the cost of inaction is sovereignty

4.1 The gap is a scale-up capital failure, not an innovation failure

Europe does not have a Deep Tech problem, it has a scale-up problem. Europe hosts 6,100 startups (versus North America's 4,600), produces more highly-educated founders, leads in Novel Energy & Energy Storage, and achieves higher early commercialization rates, 22% of European startups reach up to $10mn in revenue, versus 14% in North America. The collapse occurs at Series B, where European conversion rates are 10% against North America's 24%. The compounding consequences are severe: European Deep Tech startups grow headcount at 22% p.a. versus North America's 38%, and valuations appreciate at 12% per annum against North America's 20%.

Practical implication: Pension fund mandate reform to permit Deep Tech allocations, co-investment vehicles at the Series B and C level run at commercial terms, and capital gains reform to make European VC fund economics competitive with US structures. A maturing ecosystem generates the recycled capital, experienced talent, and network density required to compete globally, returns that only materialize if clusters are allowed to scale. Public funding programs typically target ecosystem ignition but rarely its maturation; a decreasing yet sustained public commitment through the growth phase would address precisely the Series B gap identified here.

4.2 Compete where Europe has structural advantage

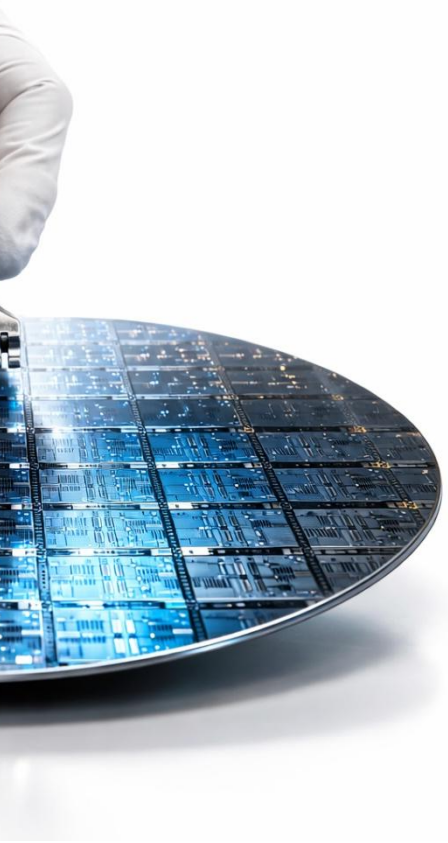
North America's investment in Novel AI alone, $143.7bn, exceeds Europe's entire Deep Tech funding across all categories combined. Attempting to compete on AI infrastructure and software-driven ventures is a category error: North America's data advantages, hyperscaler infrastructure, and talent density in computational AI are structural, not policy-addressable. The data identifies precisely where Europe does have structural advantages that policy should systematically amplify. In Novel Energy & Energy Storage, Europe already leads North America ($36.6bn versus $29.1bn). In Quantum Technology, Natural Sciences-intensive sectors, and Medtech/Biotech, European founder credentials (postgraduate depth, research institution proximity) are the globally differentiated input.

Practical implication: State-backed co-investment funds and sector-specific grants should be concentrated in these areas, sized to act as meaningful co-investors at Series B and C, not as first-check providers in pre-seed rounds where commercial VCs are already adequate and structured to crowd in rather than crowd out private capital by operating at commercial return expectations rather than concessionary terms. Enabling scaleups through targeted flexibility, particularly in labour regulation for highly skilled talent, would meaningfully accelerate growth in these sectors; as the data above shows, management-experienced founders are a proven ecosystem multiplier.

4.3 Focus on the exit infrastructure

Geographic concentration of Deep Tech is a policy lever to be amplified. Deep Tech ecosystems emerge and compound where university excellence, capital recycling, and industrial proximity co-locate and the performance differentials are enormous. The Rhine-Ruhr, Main-Neckar, BeNeLux, and Alpine corridors show organic emergence around industrial and research anchors. The most valuable policy intervention not currently in place is IPO market reform: IPOs by European Deep Tech startups are practically nonexistent. Without a viable IPO pathway, the capital recycling flywheel that makes Stockholm, Cambridge, and Munich work cannot fully activate.

Practical implication: Alongside capital markets reform, the Fraunhofer and Max Planck networks should receive dedicated IP commercialization mandates with streamlined transfer mechanisms and pan-European mobility frameworks should be prioritized to retain non-EU founder talent (particularly from Israel, which generates 30% cross-regional migration to North America) within the European ecosystem rather than allowing it to default to Silicon Valley as the path of least resistance.



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ARQIS | Long-term advisor helping founders, investors, and corporates structure financing, IP strategy, and governance for Deep Tech companies

Organization introduction

ARQIS is an internationally active, independent corporate law firm. With offices in Düsseldorf, Munich, Berlin, and Tokyo, approximately 80 attorneys provide full service legal and tax advice to clients in Germany and abroad.

The firm has a strong focus on advising clients in the venture capital and startup ecosystem and supports founders, startups, including later stage companies and unicorns, as well as venture capital funds, banks and strategic investors across all stages of a startup's lifecycle, from incorporation and early-stage financing to growth rounds and successful exits.

ARQIS provides comprehensive legal and tax advice on a wide range of financing structures, including equity and debt instruments, as well as on the structure and implementation of employee participation and incentive schemes.

Combining transactional experience with a pragmatic, business-oriented approach, the firm is well positioned to guide clients through the complex and fast-evolving venture capital landscape.

Our Perspective on Deep Tech

Deep Tech represents one of the most compelling and strategically important segments within the venture capital landscape. Characterized by strong scientific foundations, long development cycles and significant capital requirements, Deep Tech ventures demand not only patient capital but also highly specialized legal and tax advice.

Given the interdisciplinary nature of Deep Tech, ARQIS emphasizes the importance of aligning legal, regulatory and tax considerations early on, particularly in areas such as cross-border collaboration, public funding, and employee participation models tailored to highly skilled technical talent.

ARQIS is a long-term partner to founders, investors and corporates navigating these complexities. This includes supporting the structuring of financing rounds that reflect the unique risk profiles of Deep Tech companies, advising on intellectual property strategies as a core value driver, and designing governance frameworks that balance innovation with investor protection.

Key Contact:

Dr. Mauritz von Einem
Attorney-at-law, certified tax advisor, Partner

mauritz.voneinem@arqis.com
+49 170 351 3217

Benjamin Bandur
Attorney-at-law, Counsel

benjamin.bandur@arqis.com
+49 162 132 0605

Bayern Kapital | Bavaria's Deep Tech VC

Organization introduction

Bayern Kapital is the venture capital investor of the Free State of Bavaria. With €1.3bn under management, investments of up to €50mn per company, over 120 active portfolio companies, and more than 30 years of experience, it ranks among the most powerful and experienced VC investors in the DACH region. The focus is on investments in innovative high-tech and Deep Tech startups and scaleups in Bavaria, together with private co-investors, from pre-seed through the growth phase to exit.

Since its founding in 1995, Bayern Kapital has invested over €650mn of its own equity capital in more than 380 startups and scaleups across sectors such as life sciences, SaaS, climate tech, New Space, nuclear fusion, quantum technology, and AI.

Examples of numerous groundbreaking success stories that Bayern Kapital has supported from an early stage include Akhetonics, Catalym, commercetools, EGYM, EOS, Immunic Therapeutics, Isar Aerospace, IQM, planqc, SimScale, Sirion, Tubulis, Marvel Fusion, OroraTech, Proxima Fusion, The Exploration Company, and many other tech pioneers.

Our Perspective on Deep Tech

We approach deep-tech startups & scaleups with a long-term mindset, combining patient capital, large investment tickets of up to €50mn per company, and strong follow-on capabilities with decades of experience in both early-stage and growth financing.

Our network, active engagement, tickets up to €50mn per company and Deep Technological expertise make us the leading Deep Tech investor in Bavaria.

With the launch of our Growth Fund in 2015 to bridge Germany's scale-up financing gap, the Scale-Up Fund in 2021, and our latest growth financing fund in 2025, we have consistently acted as a pioneer and role model for successful Deep Tech scale-up financing in Germany.

Key Contact:

Madeleine Guggenheim
Head of Marketing, Communications & Relations

connect@bayernkapital.de
+49 176 192325-46

D11Z. Ventures | From Deep Tech Roots to Scalable Software Dominance in AI infrastructure, Cybersecurity, and Defense

Organization introduction

D11Z. Ventures is a leading European Venture Capital family office based in Heilbronn and Munich, focused on pre-seed and seed-stage investments in software and Deep Tech. With deep industry expertise, operational agility, and a clear founder-first focus, D11Z. Ventures empowers digital pioneers to transform industries.

The firm targets key verticals including B2B Software, Deep Tech, Resilience, AI Infrastructure. D11Z. Ventures maintains strong ties to Germany's hidden champions and global market leaders.

Beyond capital, the firm provides pro bono cloud infrastructure, strategic guidance, and expert-led workshops to actively support the growth and success of its portfolio companies.

Eeden: uses its proprietary recycling technology to transform textile waste into high-quality materials. We participated in eeden's €18mn Series A round in 2025.

TrustNXT: secures and verifies images and videos using cryptographic and sensor-based data to ensure authenticity and prevent manipulation. We support the further development and industrial deployment of TrustNXT's deep-tech solution.

Whisper: builds the world's first internet infrastructure intelligence platform, a custom-built knowledge graph connecting 45B+ data points across DNS, BGP, WHOIS, SSL, and routing data from 190+ countries. With sub-millisecond traversal at scale and native AI integration, Whisper lets security teams instantly see how any IP, domain, or network connects to everything else on the internet, surfacing threats, hidden infrastructure, and relationships that no existing tool can detect.

Unchained Robotics: provides a platform that enables companies to easily access and deploy automation solutions for manufacturing processes. We help them in advancing its platform and driving international expansion.

Deeplify: delivers AI-powered software that automates safety-critical industrial inspections for asset owners in heavy industries and inspection service providers. We support the startup in scaling its team and expanding deployments across key sectors.

Key Contact:

Julian Faber
Junior Investment Manager

julian@d11z.com
linkedin.com/in/julian-faber/

DeepTech & Climate Fonds | Building industry-defining companies in Deep Tech and Climate Tech

Organization introduction

The DeepTech & Climate Fonds (DTCF) is a long-term early growth investor dedicated to building industry-defining companies in Deep Tech and Climate Tech. Backed by the German Future Fund and the ERP Special Fund, DTCF provides capital to companies addressing global challenges through transformative technologies.

DTCF focuses on companies with long development cycles and high capital intensity: ventures that require sustained support to translate scientific and engineering breakthroughs into scalable businesses. With a total investment volume of €1bn and ticket sizes of up to €50mn per company, DTCF plays a key role in strengthening Europe's innovation and industrial base.

DTCF invests across key Deep Tech and Climate Tech domains, including Industry & Automation (e.g. robotics, sensor technology), Advanced Computing & Security (e.g. AI, quantum computing), Sustainable & Climate Technologies (e.g. energy systems, storage), and Life Sciences & HealthTech (e.g. MedTech, diagnostics). While primarily focused on Germany, DTCF also invests globally in companies with strong ties to the German innovation ecosystem.

DTCF is part of the solution to Europe's Deep Tech funding gap, providing long-term capital and ecosystem connectivity to scale breakthrough innovation into global leadership.

Our Perspective on Deep Tech

At DTCF, we see Deep Tech as a core driver of economic growth, industrial transformation, and technological sovereignty. Built on scientific and engineering breakthroughs, it requires longer timelines, significant capital, and a fundamentally different approach to scaling. In our experience, success depends on three factors: exceptional teams, long-term capital, and strong ecosystems. The best companies combine Deep Technical expertise with clear commercial execution.

Europe has a world-class research base and talent pool, particularly in energy, advanced materials, and industrial technologies. The challenge is not innovation, but translation: turning this strength into globally competitive companies requires better access to growth capital and effective commercialization pathways.

We invest in transformative technologies addressing global challenges in climate, energy, and industry, not just as an investment case, but as a lever for building resilient, future-proof economies.

Realizing Europe's potential requires tighter alignment between capital, industry, academia, and policy and investors willing to support companies from breakthrough to global scale.

Key Contact:

Stephanie Stein
Head of Communications

s.stein@dtcf.de
+49 160 97 51 83 91

High-Tech Gründerfonds | Funding the Technologies That Shape the Future

Bridging fundamental research and commercialization since 2005

HTGF

Organization introduction

Two decades of execution. HTGF is Germany's most active early-stage investor, with a track record built across multiple fund generations.

As a public-private partnership, we bridge academia and industry, turning early-stage innovation into market-leading companies and European research into global tech champions.

HTGF supports startups in all phases of their development into international market leaders: from pre-seed and seed through significant participation in later-stage financing rounds.

800+ startups funded · **200+** exits realized · **>€9bn** follow-on capital mobilized · **>€2bn** fund volume

HTGF invests across the full spectrum of Deep Tech, including:

- Quantum Computing & Photonics
- Industrial AI
- Energy & Climate Tech
- New Space

Selected investments: Proxima Fusion · kiutra · Atmos Space Cargo · FMC · Neural Concept

Our Perspective on Deep Tech

A resilient, sovereign economy depends on one thing: the ability to transfer fundamental research into breakthrough products and to commercialize them at scale.

We invest in the technologies others avoid, areas defined by long development cycles, regulatory complexity, and deep scientific uncertainty. Quantum computing, drug development, industrial AI, energy systems, space. These are not easy bets. They require conviction, patience, and genuine domain expertise.

Europe has the science. What it needs is the capital, the networks, and the institutional courage to back it: early, consistently, and at scale. That is what HTGF is built to do.

Key Contact:

Gregor Haidl
Partner

g.haidl@htgf.de
+49 (0)228 823 00 100

Industrie- und Handelskammer für München und Oberbayern | Turn European Deep Tech Expertise Into Competitive Power

Organization introduction

At the Chamber of Commerce and Industry for Munich and Upper Bavaria entrepreneurs are at the heart and center of our daily business. As organization for and with industry, we support entrepreneurs in starting, growing, scaling ideas, innovation and businesses here in Bavaria.

As one of Europe's most dynamic economic regions, we are committed to strengthening Bavaria's role as a global hub for innovation, technological excellence, and entrepreneurial ambition and make the Greater Munich Area the place-to-be for startups and Scaleups.

With more than 400,000 member companies, the Chamber of Industry and Commerce for Munich and Upper Bavaria is the largest chamber of commerce and industry in Germany. The chamber represents the interests of the regional business community. Its core responsibilities include representing business interests vis-à-vis politics and public authorities, as well as providing education and training and several consulting services to companies.

Our Perspective on Deep Tech

In an age marked by uncertainty and profound transformation, deep-tech innovation stands as a powerful catalyst for sustainable economic growth, high-quality employment, and a forward-looking narrative of European and German sovereignty.

It is of paramount importance to translate our wealth of expertise into tangible innovation and vibrant, competitive business models. Now is the moment to ensure that Deep Tech becomes a defining force for our prosperity, our resilience, and our technological leadership.

Key Contact:

Bernhard Eichiner LL.M.
Head of Department Industry, Innovation, Consulting

eichiner@muenchen.ihk.de
+49 89 5116 2087

Onsight Ventures Management | If AI commoditizes software, the remaining value will sit in quantum, new compute and frontier engineering

OnsightVentures

Organization introduction

Onsight Ventures is an early-stage Deep Tech fund from Innsbruck, Austria. Innsbruck is one of Europe's strongest quantum ecosystems, with more than 20 research groups and a Nobel Prize connected to its scientific environment. We believe quantum will be one of the biggest value creation drivers of the next decade.

Beyond quantum, we invest in new compute, semiconductors, physical AI and synthetic biology. We see Deep Tech as inherently dual use. Some of the most important companies of the next decade will emerge from our verticals, with applications across security, energy and space.

Our team backed university spin-outs before “spin-out investing” became a category in Europe. We are not only investors. We also build ecosystems through initiatives such as the Hermann Hauser Frontier Lab and a highly international network across Europe, UK and the US.

We build on the legacy of Dr. Hermann Hauser, co-founder of ARM microprocessors, with the ambition to help create the next generation of European technology champions capable of competing in the league of $100bn companies.

Selected investments: Black Semiconductor · Q.ANT · QuantumDiamonds · zerothird · ZuriQ · Lidrotec · TeraSi

Our initiatives: Hermann Hauser Frontier Lab · Spin-off Austria · Quanten-Hub Tirol

Our Perspective on Deep Tech

If AI commoditizes software, where will the remaining value sit? We believe the next generation of globally dominant companies will not emerge from incremental apps or workflow tools, but from technologies capable of fundamentally reshaping physics, compute, biology and industrial systems. The next trillion-dollar companies will emerge from labs, semiconductor facilities and deep engineering teams.

Europe already has extraordinary scientific talent. What it often lacks is the ambition and capital to build category-defining companies around it. Most frontier technologies look unreasonable in the beginning. Yet this is exactly where technologies with order-of-magnitude advantage emerge. What matters are founders capable of executing on problems most people consider impossible.

Onsight Ventures is a specialized fund built around high-conviction selection. We focus on identifying the very small number of founders and technologies capable of building enduring monopolies through Deep Technical advantage. We believe exceptional founders are often highly autodidactic and intensely curious.

Key Contact:

Jasmin Güngör
General Partner

✉ investment@onsight.vc
in www.linkedin.com/in/jasmin-güngör

We bring the scientific foundation to the report with a focus on Deep Tech founding teams

Isabell Welpe

Prof. Dr. Isabell M. Welpe is the chair of the Strategy and Organization research group at the Technical University of Munich. She was elected among the 40 leading HR-Personalities (Award of the Journal Personalmagazin). The expertise of Professor Welpe includes digital transformation of companies, business model innovation and the impact of digital technologies on the economy and organizations.

Prof. Dr. Isabell M. Welpe
Professor

welpe@tum.de
+49 (0)89 289 24802

Theresa Treffers

Prof. Dr. Theresa Treffers is a Senior Academic Councillor at the School of Management of the Technical University of Munich and a Full Professor of Management and Entrepreneurship at Seeburg Castle University in Austria. Her expertise includes research on team dynamics predicting startup success, the impact of generative AI and emerging technologies on work and leadership, and diversity, equality, and inclusion in startups.

Prof. Dr. Theresa Treffers
Professor

theresa.treffers@tum.de
++49 (0)89 289 24812

Jannik Nolden

Jannik Nolden is a doctoral researcher at the Chair of Strategy and Organization at the Technical University of Munich. He gained experience as a Senior Consultant at McKinsey & Company. The expertise of Jannik Nolden includes entrepreneurship, venture capital, and Deep Tech startups, with research focused on the early success prediction of Deep Tech startups and the impact of human capital on securing funding for Deep Tech ventures.

Jannik Nolden
PhD Candidate

jannik.nolden@tum.de
+49 (0)89 289 24800

Our Perspective on Deep Tech

Deep Tech startups commercialize disruptive innovations that are grounded in advances at the scientific and technological frontier. Deep Tech solutions are rare, difficult to imitate, and characterized by high technological uncertainty and long development cycles. They address fundamental societal challenges and play a critical role in strengthening regional technological sovereignty, economic resilience, and long-term wealth.

Deep Tech startups combine highly complex software with novel and capital-intensive hardware. This dual complexity increases coordination costs and extends development timelines. The transition from research and development to commercialization (“valley of death”) is particularly critical, as ventures must secure substantial financial resources. A rigorous understanding of their success drivers is crucial for founders, investors, and policymakers alike.

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