



**CONNECTING INVESTMENT
ECOSYSTEMS BY STRENGTHENING
TRANSPARENCY AND INCLUSION**

D 1.1 Assessing the Gaps and Challenges of the European Investment Ecosystem

Grant Agreement no: 101114238

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Project Title	Connecting Investment Ecosystems by Strengthening Transparency and Inclusion
Grant Agreement Number	101114238
Funding programme	HORIZON-EIE-2022- SCALEUP-02
Deliverable Number	1.1
Deliverable Name	Gap Analysis Report
Deliverable Type	R: Document, report
Dissemination Level	PU – Public
Due Date	01.02.2024
Date Released	Date
Date Submitted	01.02.2024
Author(s)	Hexagon Ventures (Techcelerator)
Reviewers	

History of Changes

Version	By	Revision Date	Description

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- Contributors

This report heavily leans on insights from online interviews with deep tech founders, venture capital managers and other stakeholders active in the start-up ecosystem communities in Europe:



● CO-INVESTIN Project Objectives

CO-INVESTIN aims to enhance access to funding in less developed EU ecosystems by attracting foreign investors able to co-invest with local VCs and support growth-stage companies. It will leverage the expertise and networks of the project partners to connect, enhance and expand at the pan-EU level a process naturally done by some VCs in emerging ecosystems to support the best scaleups in their portfolios in the efforts of raising new rounds: the syndication with foreign VCs with a stronger investment capacity.

CO-INVESTIN focuses on creating cross-border co-investment opportunities for Emerging and Moderate EU ecosystems by leveraging promising startups and scaleups in the portfolio of local investors to attract foreign investors from more advanced ecosystems in their new rounds.

● Methodology

The information used to compile the REPORT was collected with utmost diligence. The underlying individual fund data is based on various sources publicly available as well as input received from funds and scale-ups directly as part of quantitative surveys conducted between October 2023 and January 2024.

The data and research for this version of the report include information in effect before the end of 23.01.2024.

For the scope of this project, the consortium searched to select and interview **venture capital funds** that fell into the following categories:

- European HQ or a European office and a Venture Capital investment focus
- Fund types that were not included are business angel groups, public grants and subsidies, family office setups and crowdfunding/investment platforms. For regional insights and comparisons and unless otherwise stated all funds with at least a local office in a given country or region were included in reported numbers.
- Deep technology focus (in correlation with companies project Target Group - Scaleups, see Target Group Profile - Scaleup)
- Average ticket size of 500K - 1K euro
- Rounds Seed, Seed II, early Series A or Series A

For the scope of this project, the consortium searched to select and interview deep tech founders of scale-up companies who met these terms:

- High-growth* companies
- >500k € in revenue, preferred 1-3mn €
- Raised at least EUR 1 million, if fundraising - the investment must be >1M€ (pre-Series A, actively raising a Series A, and onwards)
- Runway for the next 12 to 15 months
- More than 10 employees
- match our verticals (see below)
- HQ in Europe

We have reached out to 36 venture capital funds and 27 scaleups in Europe.

CO-INVESTIN developed a set of questions for investors and startups.

The Interview Guide for Scaleups was focused on the challenges that they may face, such as access to finance, investors, and information, and how to address them in the sense of cross-regional collaboration (See Annex 3).

The Interview Guide for Investors focused on cross-regional collaboration, investment opportunities and barriers and included inquiries on collaboration strategies, support for women-led start-ups, future needs and recommendations, and a set of additional (optional questions). The VC questionnaire may be read in Annex 4.

To ensure a relevant response rate and encourage investors and founders to support our research we offered them as an incentive some promotional benefits: presentation of each respondent on CO-INVESTIN LinkedIn account and an invitation to contribute and be involved in our future activities, etc.

DISCLAIMER

The information used to compile CO-INVESTIN - Assessing the Gaps and Challenges of the European Investment Ecosystem was collected using utmost diligence. The data is based both on declarations from funds representatives and scaleup founders directly as well as using resources publicly available. This Report represents the subjective and individual beliefs of the 5 Partners of the COINVESTIN Consortium. Errors and omissions excepted!

Want to share additional data or say hi?

[The CO-INVESTIN project](#) LinkedIn or <https://co-investin.eu/>

- **Executive summary**

This report assesses the gaps and challenges within the European Investment Ecosystem across four categories: Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging Innovators, with a specific focus on deep tech startups and investors. The analysis provides valuable insights into the current state of innovation and investment across these categories, shedding light on disparities, as well as opportunities.

Throughout the first chapter, we delved into the geographic split and analysed the European investment landscape, taking into account factors such as inflation, elevated interest rates, funding constraints, regulations, and geopolitical events. Despite these challenges, the investment levels have surpassed pre-pandemic times. The United Kingdom remains at the forefront, maintaining its leading position, with Germany, Spain, France, and the Netherlands following suit.

However, our focus then shifts to a more detailed examination of the Deep Tech Investment Landscape in Europe. Our analysis considers industry, technology, and geography. We've found that Health & Tech bio emerges as the leader in VC funding within the Deep Tech sector, closely followed by SaaS & AI and Transportation. Furthermore, AI stands out as the primary recipient of VC funding, with Hardware, Big Data, IoT, and Biotech & Biology following closely. The United Kingdom continues to be the leading European country for deep tech investment, with France, Germany, and Sweden securing notable positions in the rankings.

Closing up, we explore the challenges faced by deep tech startups that span diverse aspects such as geographical origins impacting access to capital, the need for alignment between growth potential and funding strategies, and the essential role of proficient selling skills. While business knowledge and investment readiness vary among countries, positive trends emerge, with emerging and moderate economies making significant strides. Access to relevant information, transparency in the investment process, and the dilemma of staying or moving to more innovative ecosystems present nuanced challenges. The extended timelines for both product development and market entry underscore the unique hurdles faced by deep tech ventures, highlighting the importance of strategic planning and adaptation in navigating the intricacies of the investment landscape.

1. European Innovation. Geographic split

Nowadays in the dynamic and competitive European landscape, innovation is the cornerstone of success and progress. It drives economic growth, fuels transformative breakthroughs that shape industries, fosters entrepreneurship, and creates employment opportunities. However, the distribution of innovation ecosystems across the EU is not uniform. While certain regions boast robust innovation capabilities and attract substantial investment, others face significant challenges in nurturing and supporting innovation. This disparity highlights investment gaps and growth opportunities within specific EU innovation ecosystems.

The investment gap refers to the shortfall of funding opportunities available to innovative startups, as well as early-stage ventures in regions or ecosystems with limited access to capital. This gap can hinder the growth and success of promising companies, potentially impeding the overall development of innovation ecosystems. The lack of adequate investment can prevent these companies from expanding their operations, conducting research and development, and attracting talent.

To effectively address these gaps and promote sustainable innovation across the EU, it is crucial to comprehensively assess innovation performance and identify areas for improvement. A helpful and informative tool to achieve this is the European Innovation Scoreboard¹ (EIS) tool.

o 1.1 European Innovation Scoreboard

The European Commission EIS provides a comparative assessment of the Research and Innovation performance of EU Member States, other European countries, and regional neighbours. It helps countries assess the relative strengths and weaknesses of their national innovation systems and identify challenges they must address. The latest version of EIS was released on July 6th, 2023 (EIS 2023). Its framework encompasses 4 main types of activities, that are further subdivided into 12 innovation dimensions, comprising 32 indicators in total².

¹ [European Innovation Scoreboard](#)

² [European Innovation Scoreboard 2023 - Methodology Report](#)

Type of activities	Innovation dimensions	Examples
Framework conditions - the foundation	Human resources	No of doctorate graduates in STEM fields, tertiary education attainment, and participation in lifelong learning activities.
	Attractive research systems	International scientific co-publications, top 10% most cited publications, and foreign doctorate students.
	Digitalisation	Broadband penetration rates and the proportion of individuals with above-basic overall digital skills.
Investments - the fuel	Finance and support	Private venture capital investments, R&D expenditures in universities and public research organisations, and direct and tax-based government support for business R&D.
	Firm investments	Investments in firms' own innovation, including business R&D expenditures, non-R&D innovation expenditures, and innovation expenditure per employee in innovation-active enterprises.
	Use of IT	Enterprises actively increase the ICT skills of their personnel and the employment of ICT specialists.
Innovation activities - the engine room	Innovators	The proportion of SMEs that have introduced innovations on the market/within their organisations.
	Linkages	Collaboration efforts between innovating firms, research collaboration between the private and public sectors, and job-to-job mobility of human resources in science and technology (HRST).
	Intellectual assets	PCT patent applications, trademark applications, and design applications.
Impacts - the real-world outcomes	Employment impacts	Employment in knowledge-intensive activities and employment in innovative enterprises.
	Sales impact	Exports of medium and high-tech products, exports of knowledge-intensive services, and sales resulting from innovative products

	Environmental sustainability	Resource productivity, exposure to air pollution and the development of environment-related technologies.
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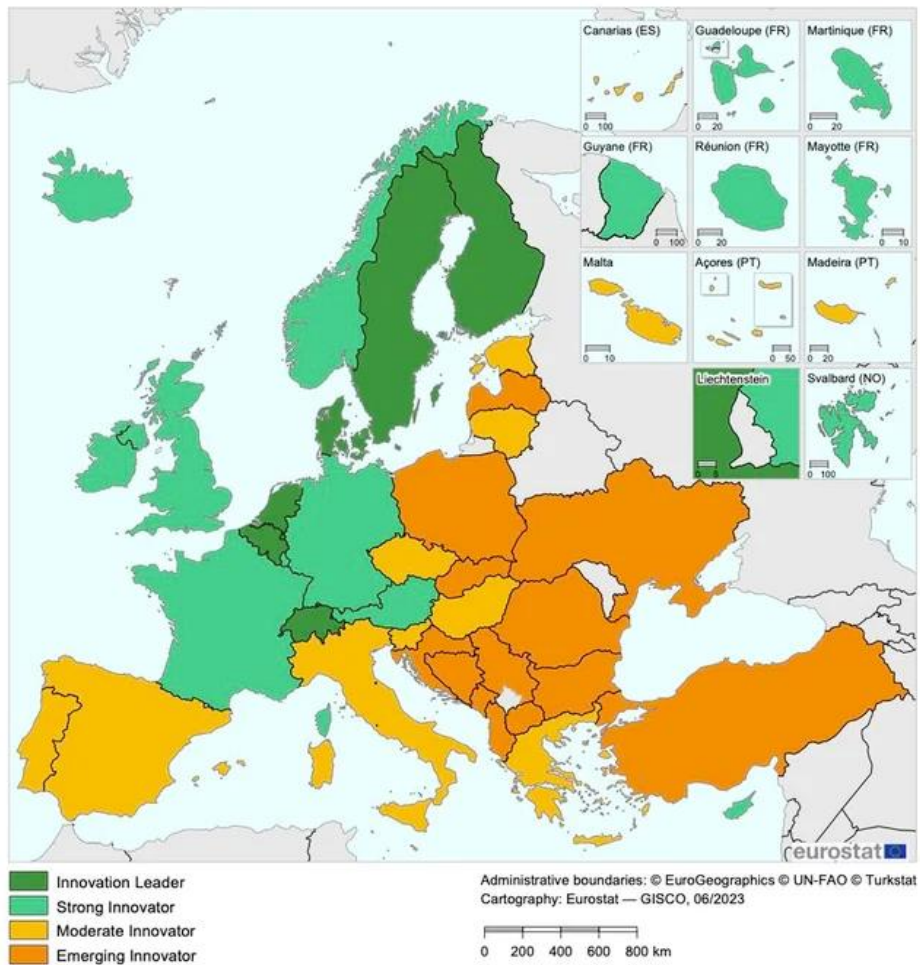
The performance of EU national innovation systems is measured by the Summary Innovation Index, a composite indicator derived by calculating the unweighted average of the 32 indicators. According to the latest findings, EU member states are categorised into 4 innovation performance groups presented below.

Also, as illustrated on the Eurostat map, we can easily observe a geographical clustering of the performance groups with Northern and Western Europe hosting Innovation Leaders and a substantial portion of Strong Innovators, while Southern and Eastern Europe predominantly accommodates Moderate and Emerging Innovators.

Comparing the last 2 reports, Denmark has emerged as the most innovative Member State, surpassing Sweden, which held the lead for an extended period. As for Emerging Innovators - unfortunately, they are not bridging the gap, consequently falling behind the Moderate Innovators. A noteworthy change this year is Hungary - stepping up to Moderate Innovators, due to improvements in areas such as foreign doctorate students and broadband penetration.

Innovation Performance Group	Performance	Member States
Innovation Leaders	↑125%	Belgium, Denmark, Finland, the Netherlands, and Sweden
Strong Innovators	Between 100% and 125%	Austria, Cyprus, France, Germany, Ireland, and Luxembourg
Moderate Innovators	Between 70% and 100%	Czechia, Estonia, Greece, Hungary, Italy, Lithuania, Malta, Portugal, Slovenia, and Spain
Emerging Innovators	↓70%	Bulgaria, Croatia, Latvia, Poland, Romania, and Slovakia

Image 1: European Innovation Scoreboard Map 2023



Startups play a crucial role in fostering economic growth on a global and local scale. Therefore, we can't discuss European innovation, without taking into account the European startup landscape. From the 4 above-mentioned Innovation Groups, Innovation Leaders and Strong Innovators are significant contributors to the entrepreneurial ecosystem, as they excel across various innovation domains (strategic investments in education, research, and skills development, fostering effective innovation partnerships between companies, academia and research centres (RDI actors).

For Moderate and Emerging Innovators, the journey is more challenging. Investors outside the region often overlook these countries because of multiple factors:

- It is seen as "immature" due to the lack of a standardised venture investment system
- They are fragmented markets and small economies. They present challenges for entrepreneurs, but also unique opportunities

- Even though the investment environment is improving, corruption and weak regulatory and judicial systems remain a great challenge
- The lack of efficiency and enough involvement from national governments to help boost the region's economy
- Little education for founders in terms of investment options, as they are typically less sophisticated than the funds you can find in Europe

According to the feedback³ gathered from Taftie network agencies in a short report, there are a lot of challenges faced by startups both in more and less innovative countries.

- Primary obstacles: lack of access to both skilled talent and financial resources
- Additionally, nearly half of the agencies considered bureaucratic issues to be a significant barrier
- Conversely, other types of resources, such as non-financial support and access to partners, were not seen as major impediments
- Additional challenges cited included the absence of a well-developed investment ecosystem and limited access to markets.

Similar observations were noted regarding the challenges encountered by scaleups. Additional challenges highlighted are limited access to both domestic and international markets, few role models for 'unicorns,' and restricted investment opportunities.

○ 1.2 European Investment Landscape (including the United Kingdom)

The technology reset in the global and European sectors, influenced by factors such as inflation, elevated interest rates, funding constraints, regulations, and geopolitical events, persists. Technology firms have come under huge strain over the last years with companies being pushed to prioritise profitability over growth at all costs as investors re-evaluate the sector. Among the most severely affected aspects is the venture capital funding landscape for startups, particularly those situated outside the United States.

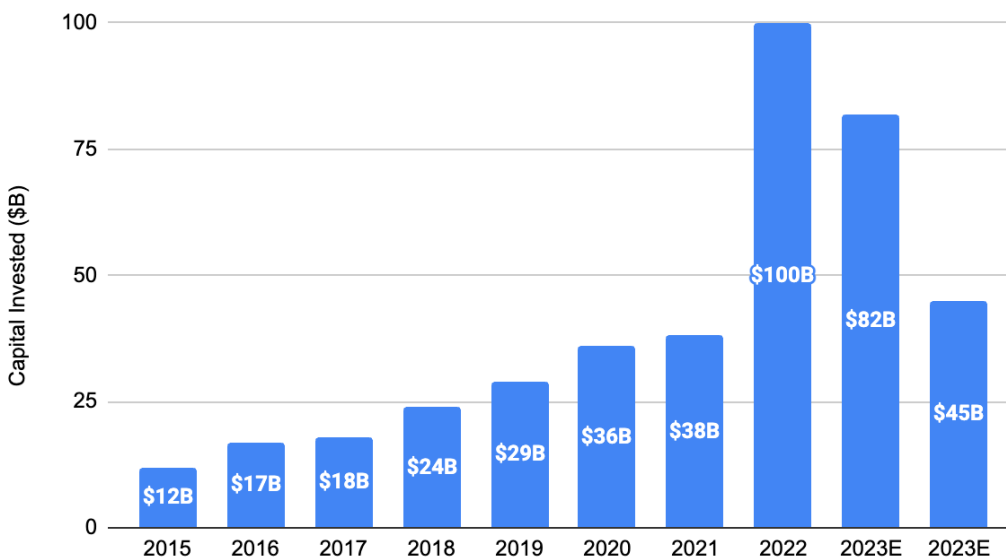
Despite that, there are reassuring signs of resilience. The total investment volume has maintained stability over the past five quarters, underscoring the

³[Taftie Report Meeting 4 - Startups and scaleups](#)

enduring strength of the sector's underlying fundamentals. This steadiness is especially noteworthy, considering the turbulence observed in the broader global financial markets. Early-stage investment has been a key driver of this resilience, as funding for early-stage startups has remained relatively powerful. It reflects the continued attractiveness of Europe's startup scene, home to many promising companies with the potential to disrupt industries and create new jobs.

According to Atomico's "State of European Tech 2023" Report, the total capital investment into the European tech ecosystem in 2023 is on track to reach around \$45 billion, representing a decrease of 55% from the record year of 2021 (when the ecosystem reached over \$100 billion for the first time), and around 38% compared to 2022 (with a total of \$82 billion) and according to Dealroom's Data, European startups raised \$63 billion invested across over 10K funding rounds, down 37% on 2022. Yet, Europe is the only region that records growth in investments (18%) compared to 2020. The recovery is credited to a consistent influx of new startups securing funding, countering downward valuation rounds. However predominant trend in fundraising involves flat rounds, down rounds, delayed rounds, layoffs and closures.

Total capital invested (\$B) in Europe, 2014 to 2023E

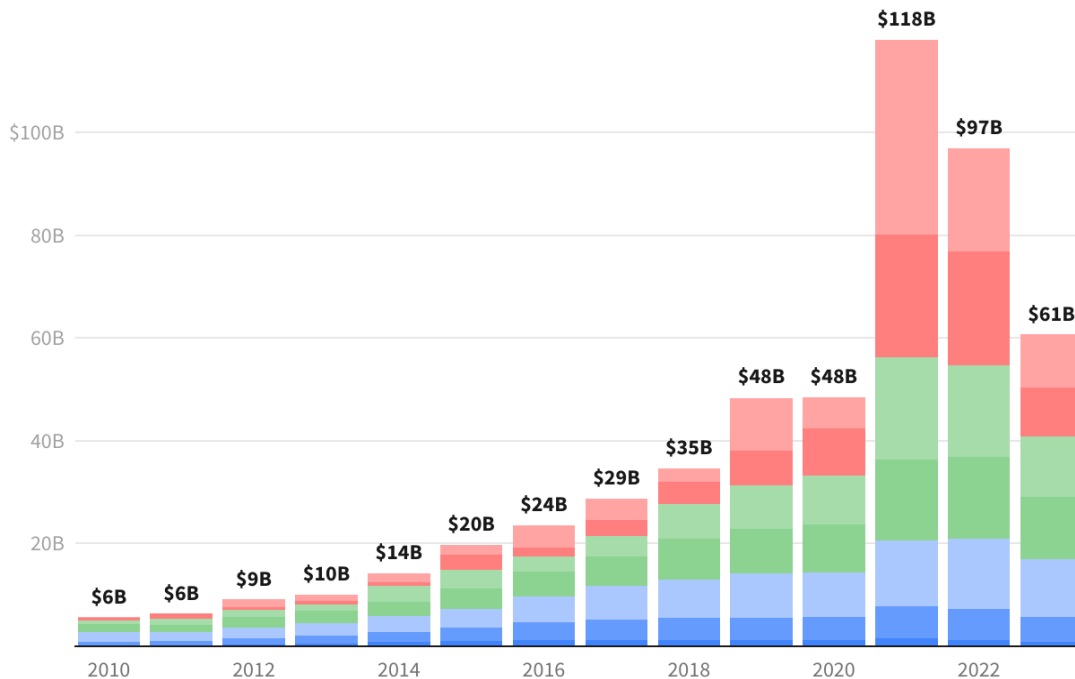


Source: State of European Tech Report 2023, page 38

Notes: Data is as of 30 September 2023. Full-year extrapolated based on year-to-date data. Excludes the following: biotech, secondary transactions, debt, lending capital, and grants. GDP data from International Monetary Fund.

European VC investment

■ \$0-1m (Pre Seed)
 ■ \$1-4m (Seed)
 ■ \$4-15m (Series A)
 ■ \$15-40m (Series B)
 ■ \$40-100m (Series C)
 ■ \$100-250m (Mega rounds)
 ■ \$250m+ (Mega+)



Source: Dealroom.co

One of the main reasons that led to this trend is the retreat of U.S. investors. American funds have previously been a significant driver of funding activity in Europe, and several notable VC funds in the U.S. have set up shop in London to increase their investments in the region. Others are related to global factors, such as macroeconomic environment, funding constraints, regulations, and geopolitical risks.

The Federal Reserve and other central banks have raised interest rates and pulled back on pandemic-era stimulus to stave off soaring inflation. That's prompted investors to reassess their positions on loss-making tech companies, whose valuations typically rest on the expectation of future cash flows. But while international VC firms may be withdrawing from the region, Europe benefits from a strong and significant base of local investors.

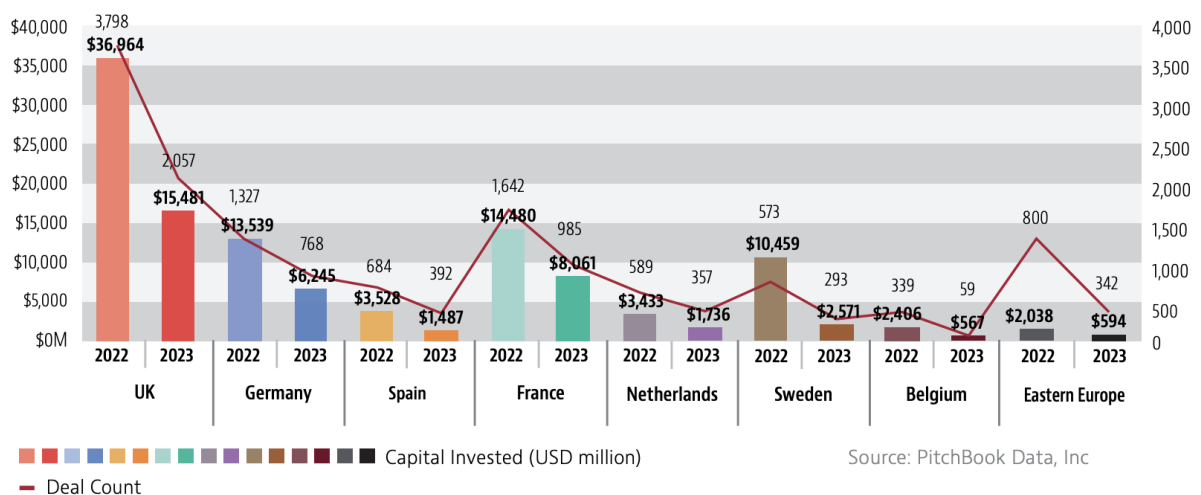
The distribution of ecosystem values of private tech varies by region, but in the past 5 years, has stayed quite stable:

- France & Benelux take home the biggest share at 35%. This is largely thanks to their significant public market value and the Netherlands is home to ASML, the largest European listed tech company.

- SAP in Germany is Europe's next biggest public tech giant, boosting DACH into tied second place overall with 23%.
- The UK & Ireland is home to the largest share of private tech, bringing its overall share up to 23%.

Together, **these 3 regions capture 81%** of the combined ecosystem value in 2023, again underscoring the prevailing disparities across different parts of Europe, but not surprisingly given the relative maturity of tech ecosystems in these countries and deeper pools of local talent, capital, and more established public markets. **That said, the rest of Europe has done some catching up, increasing their share of the pie from 15% in 2019 to 19% in 2023.**

According to Pitchbook's Analysis of the 2023 European VC Investment:



Source: [Europe venture capital The road ahead in 2024](#), page 1

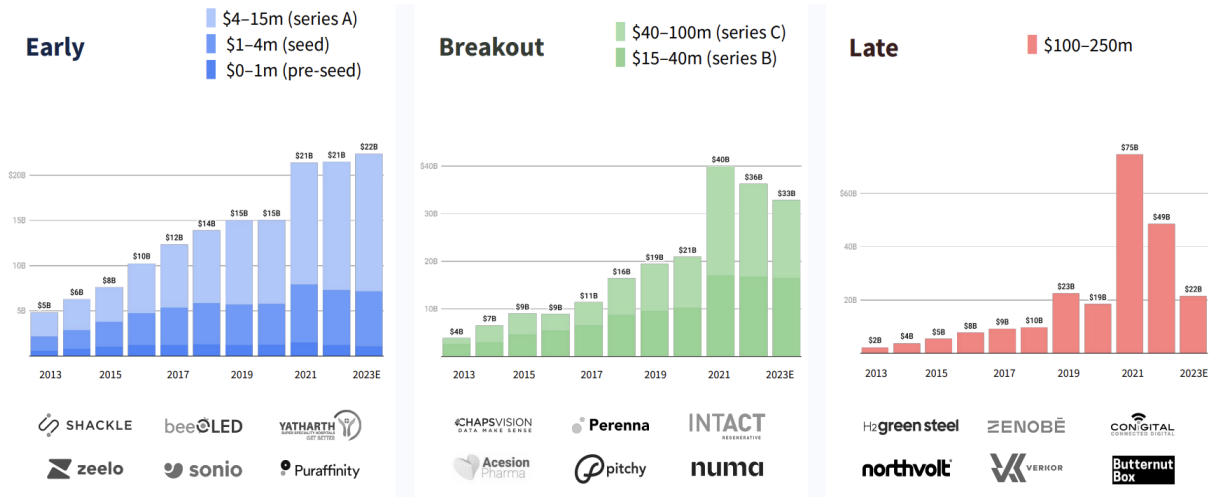
- The **UK** maintains its leading position with a projected €11.7B in capital invested, however has experienced a significant decline in deal value, witnessing a 49.6% drop due to investors retreating from large deals during the downturn. Ireland faced an even more substantial decline of 57.1%. However, UK-based startups were still able to secure €17.2 billion in funding.
 - Notable among these deals were the £500 million (approximately €585 million) funding round for lending specialist Abound and the £280 million (approximately €328 million) raise for dog food startup Butternut Box.
- As for **France & Benelux** - in contrast to its main competitors, France demonstrated more resilience, experiencing a 38.1% decline in deal value and it follows the UK with an estimate of €7.4 billion of capital invested. The country secured a total funding of €8.5 billion, with significant contributions

from major rounds, such as the approximately €1.5 billion financing for battery developer Verkor.

- On the other hand, both Belgium and Luxembourg faced substantial declines, with reductions of 58.9% and 80.2%, respectively, compared to the previous year.
- **The Netherlands** (€1.98 billion projected invested capital) has re-entered the top 5, displacing Switzerland (€1.57 billion) and joining Sweden (€1.57 billion).
- Among the **DACH countries (Germany, Austria, and Switzerland)**, Switzerland performed the best, experiencing a 40.1% decline in deal value. Germany, which boasts the largest venture ecosystem in the region, witnessed a 47.1% fall, with total capital raised reaching €6.7 billion, yet is in the top three, after France, with \$7.8B capital invested.
 - Interestingly, only one German deal made it into Europe's top 10 deals of the year, and it was Aleph Alpha, a competitor to OpenAI, securing over €462 million in its Series B funding round.
- **Finland and Norway** are anticipated to witness total venture investment dropping below the €1 billion mark this year due to reduced deal activity. Sweden, as the largest hub in the region, secured €3.2 billion in funding, a decline from the €5.4 billion recorded in 2022. Despite this, the country boasts the largest European VC deal of the year, thanks to H2 Green Steel's €1.5 billion round. Notably, Iceland was one of two countries experiencing a growth in VC investment compared to the previous year, with a 6.7% increase in capital invested in its startups in 2023.
- In **Central and Eastern Europe, Romania** emerged as the second country to record a rise in deal value, experiencing a 4.6% increase to reach €113.8 million. In **Estonia**, which houses CEE's largest VC ecosystem, the capital raised dipped below the €1 billion mark to €348.1 million. Notably, Tallinn-based battery maker Skeleton Technologies secured Central and Eastern Europe's largest VC deal, amounting to €108 million in a round conducted in October.
- **Southern Europe** witnessed a notable downturn in venture capital activity. **Spain**, in particular, experienced a nearly 50% reduction in total VC deal value, amounting to €1.7 billion for the year. Significant deals in Spain included a €115 million round for car subscription startup Revel and a €81 million Series G extension for shopping platform provider Wallapop.
 - **Portugal, Italy, and Greece** faced more substantial losses amid the ongoing downturn in venture capital investment.

However, according to the European State of Tech Report, only a handful of countries deviated from this pattern - Lithuania, Romania, and Luxembourg stand

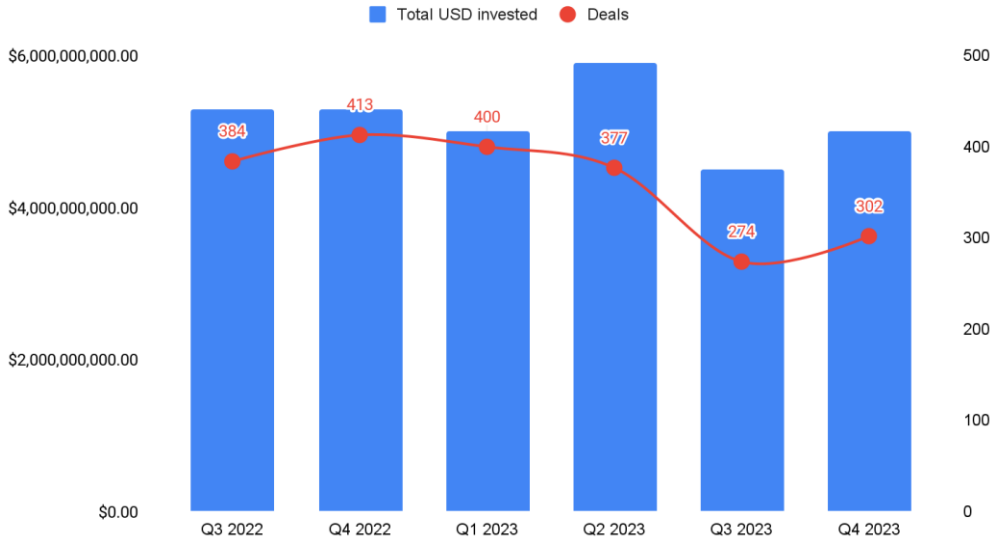
out as the sole nations to have experienced a year-on-year increase in total capital invested in 2023.



Source: Dealroom, European venture capital in 2023, page 15

In terms of stages, **early-stage startups** have seen their funding reduced by less than their scaleups counterparts, with funding for companies raising sub-\$15 million rounds slipping to \$8.2 billion in the first half of 2023, down from \$10.3 billion in the same period a year ago. Atomico's report reveals a decline in fundraising at each stage, from Seed to Series C and beyond, 20% of the venture rounds raised in the first quarter of 2023 were down rounds, 3.6 times higher than the same period a year ago. This is attributed to the reluctance to take risks, limited cash availability, and the influx of investor funds into their portfolio companies.

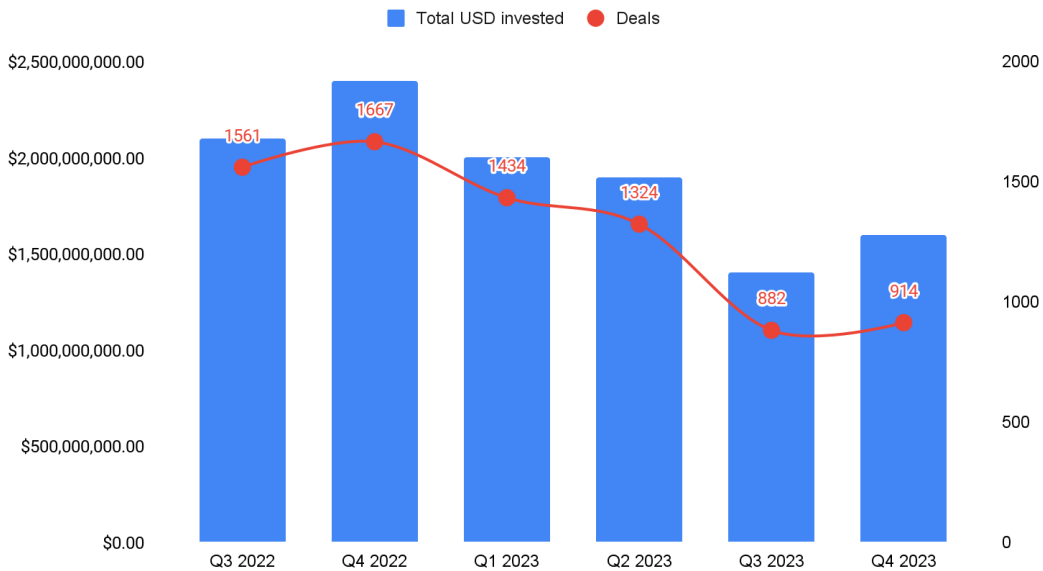
Europe Early-Stage Investment Through Q4 2023



Source:

Crunchbase
Source: Crunchbase

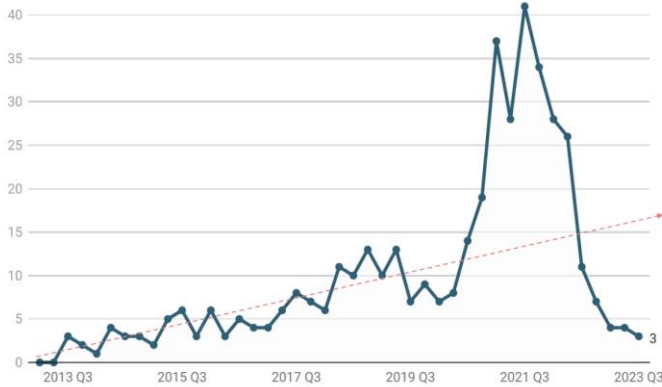
Europe Seed And Angel Investment Through Q4 2023



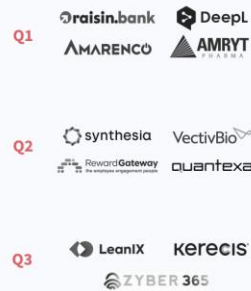
Later-stage startups are expected to account for 93% of the overall \$32 billion loss in investment between 2022 and 2023. In Europe, only **11** “unicorns” (startups with a valuation exceeding \$1 billion) were expected to emerge in 2023, compared to **48** in 2022 and **108** in 2021. It comes after a recent report from VC firm Accel said that tech unicorns in Europe and Israel are producing five times the

number of startups, as the maturation of the continent’s tech ecosystem sparked the recycling of talent.

New European Unicorns by quarter

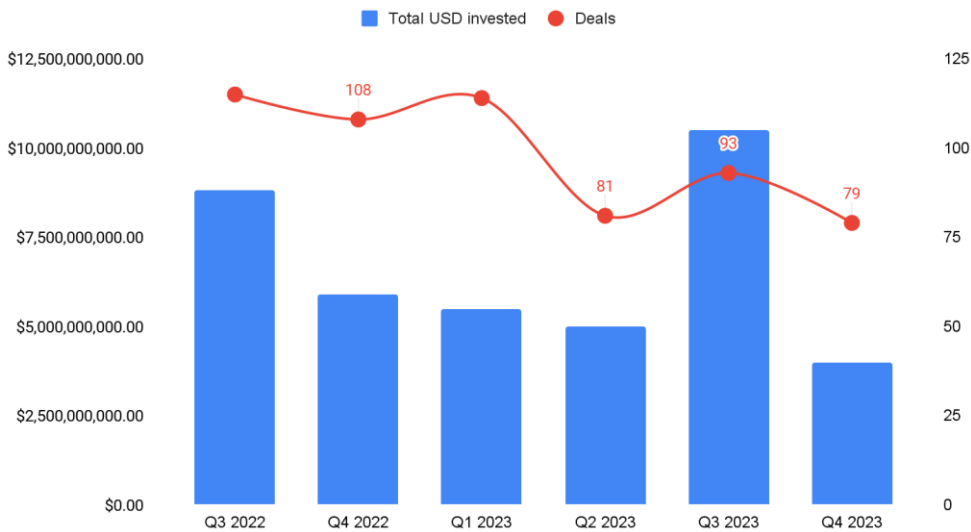


11 new European unicorns in 2023 so far, of which three in Q3.



Source: Crunchbase

Europe Late-Stage & Technology Growth Investment Through Q4 2023



Source: Dealroom, European venture capital in 2023, page 14

The trend of declining startup valuations is indicative of a broader phenomenon in the European tech market, where there has been a significant compression in valuation multiples overall. For example:

- Pay later giant **Klarna** slashed its valuation by 85% to \$6.7 billion; (Sweden)
- **Checkout.com** reportedly cut the internal tax value of its shares by 15%; (United Kingdom)
- Fast grocery delivery service **Flink Food**'s valuation fell 62% from \$2.9 billion to \$1.1 billion; (Germany)

- **Blockchain.com** raised at a 50% discount, its valuation falling from \$14 billion to \$7 billion; (United Kingdom)
- Local delivery service **Jokr** raised at a 38% discount, going from \$1.3 billion down to \$800 million; (Germany)

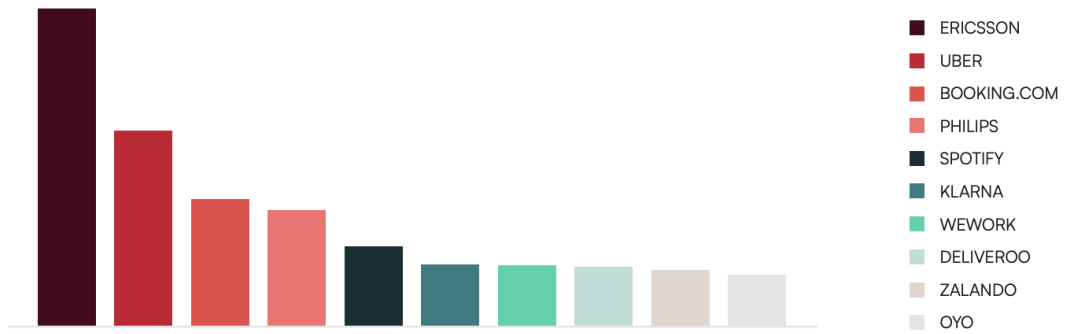
Layoffs have also affected the ecosystem. In the first quarter of 2023, there were 11,100 layoffs in Europe accounting for about 6% of the global tech industry, which laid off 185,000 members of staff, and the phenomenon will continue, until the end of the market cycle.

An upside of the layoff trend is that more and more people are becoming tech founders in Europe. Instead of being discouraged by the tech downturn, available evidence indicates that the current economic climate is fueling an increased appetite for entrepreneurship across the ecosystem.

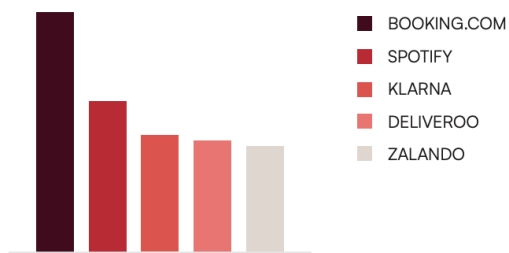
These potential founders, originating from unicorns and major tech companies, bring high expertise gained from working with some of the world's largest tech companies. **Consequently, layoffs serve as a direct injection of founder talent into the market.** Simultaneously, the increasing maturity of the European tech ecosystem contributes to this phenomenon. Despite the challenges faced by later-stage tech companies during the tech downturn, data from [Antler](#) indicates that it also serves as an inspiration for a new generation of European tech founders. Here are some noteworthy statistics:

- Within 12 months after a tech company makes layoffs, the number of employees who want to become tech founders increases by 391%
- 9 out of the top 10 tech companies generating aspiring founders in Europe made layoffs in the last 3 years
- In 2022, applications from founders working at tech companies that have made layoffs increased by 111%
- There was a 75% increase in founder applications in 2022 compared to 2021
- Since 2021, the number of aspiring founders from Big Tech (+21%) and large startups (+27%) has grown significantly
- Engineer is the job title that has grown the most since 2021 among aspiring founders

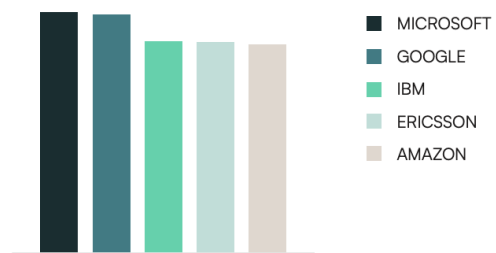
FOUNDERS COMING FROM TECH COMPANIES THAT HAVE MADE LAYOFFS



LARGE TECH STARTUPS GENERATING THE MOST ASPIRING FOUNDERS SINCE 2021



BIG TECH GENERATING THE MOST ASPIRING FOUNDERS SINCE 2021



Source: Antler: Europe's New Tech Founders 2023, page 17

2. Deep tech innovation in Europe

Europe is now better positioned to thrive in the current era of technology than it was a decade ago. The region benefits from a well-established venture ecosystem, a wealth of talent, and robust connections to U.S. markets. Most importantly, Europe has led in pivotal sectors like fintech, health care, and hardware. Furthermore, the unfolding race in deep tech signifies a new frontier, emphasising the region's continued significance in shaping the global technological landscape.

o 2.1 What is a deep tech startup?

Deep tech, or deep technology refers to those startups whose business model is based on high-tech innovation in engineering or significant scientific advances. Deep tech startups provide technology solutions based on substantial scientific or engineering challenges.

The term deep tech is the opposite of “shallow tech”, a term less used but which helps us get the term area more easily. Shallow tech is a relatively simple technological advance moving a business from a non-digital business model to a digital one. Shallow tech advances are easy for competitors to replicate, so they don't tend to disrupt the market so much.

“Deep tech is technology based on cutting-edge scientific advances and discoveries and is characterised by the need to stay at the technological forefront by constant interaction with new ideas and results from the lab. Deep tech is distinct from ‘high tech’ which tends to refer only to R&D intensity.”⁴

The journey of deep tech startups begins with an extended research and development phase, focusing on the creation of hardware and/or intellectual property that demands significant capital and time investments, therefore requiring a new approach to investing. These ventures often boast a higher proportion of co-founders with technical expertise and advanced education. Once the technical challenges are successfully addressed, these startups face another hurdle - the product market fit. Only when this is accomplished, these startups gain robust defensibility against competitors, **relying on technology barriers rather than being dependent solely on network effects and market lock-in**. According to Dealroom European Deep Tech Report 2023, deep tech startups require at least 35% more **time** and 48% more **capital** compared to non-deep tech startups to achieve revenue levels exceeding \$5 million. This translates into a greater capital requirement for attaining product-market fit, leading to increased dilution for both founders and investors. Surprisingly, however, they take approximately the same

⁴ [EIC Work Programme 2023](#)

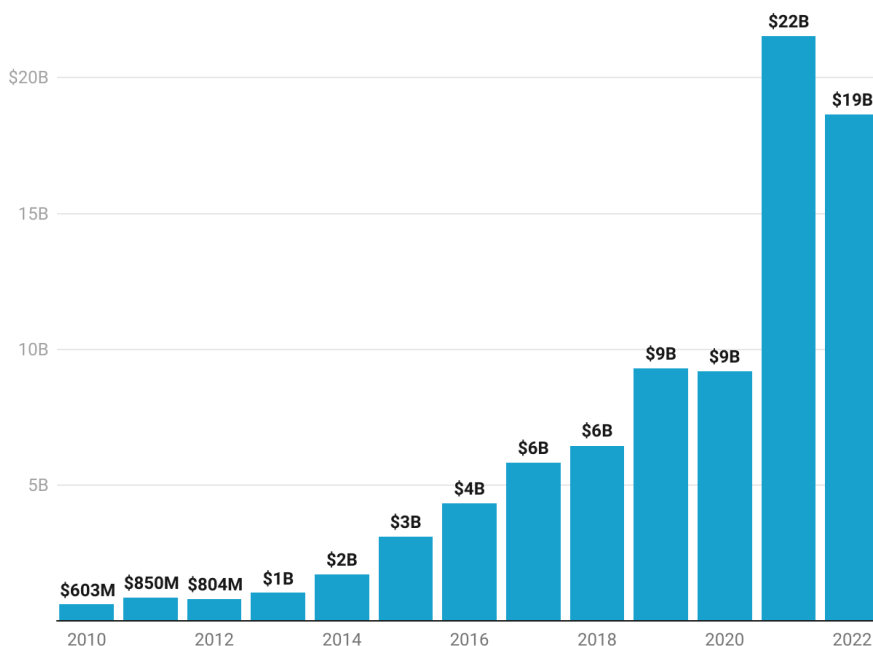
amount of time (approx. 2 years) to reach revenues of \$1 million, and only 11% more capital to reach \$10m revenue, *hinting at the possibility that this gap may narrow over time.*

Additionally, an interesting point is raised: *"What is deep tech today is not necessarily deep tech tomorrow. Once the technology or product is no longer novel and as the company scales, what was once Deep Tech becomes regular tech."* Furthermore, aligning with the observations in the Startup Genome Report, the integration of deep tech innovations into the startup ecosystem has proven impactful. Deep tech's exit amount has demonstrated a remarkable growth rate, surpassing that of non-deep tech technologies from 2017–2018 to 2021–2022, reaching 326% compared to 225%.

o 2.2 Deep tech Investment Landscape in Europe

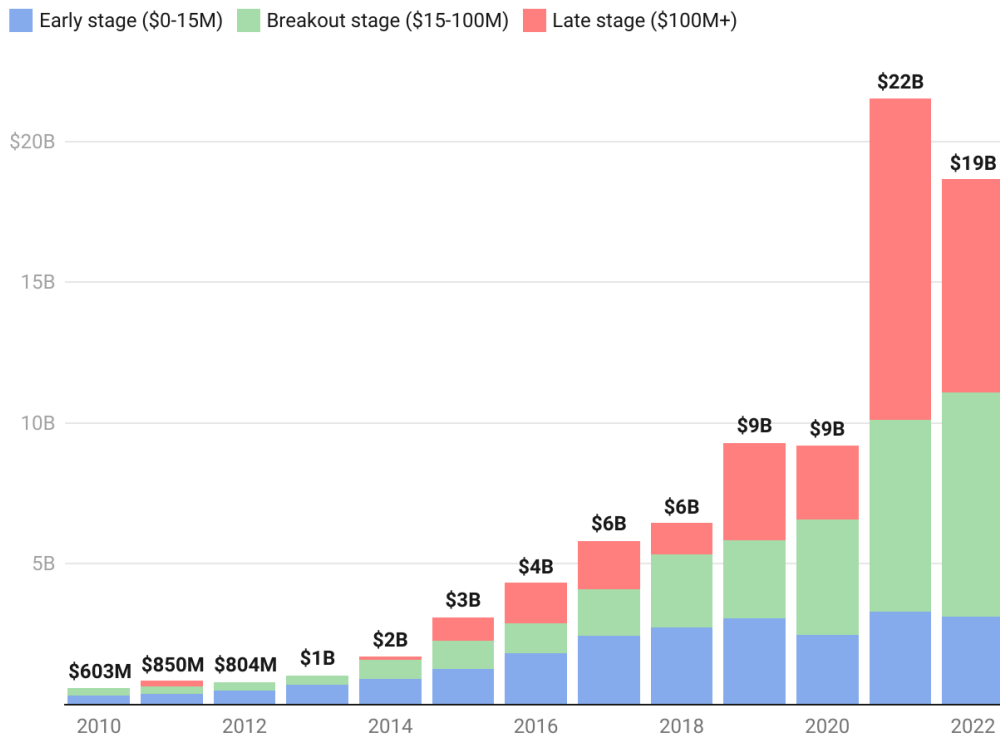
Investment in European Deep Tech startups has been consistently increasing for over a decade, with the pace further accelerated by the pandemic. As per Dealroom Data, startups secured \$19 billion in funding in 2022. Although this represents an 18% decrease compared to the total in 2021, it still reflects more than a twofold increase from the investments recorded in 2020. Considering the overall \$97 billion VC investments in 2022, this accounts for nearly 20% of the total.

European Deep tech VC investment



Source: Dealroom.co · Created with Datawrapper

European Deep tech VC investment by stage



Source: Dealroom.co • Created with Datawrapper

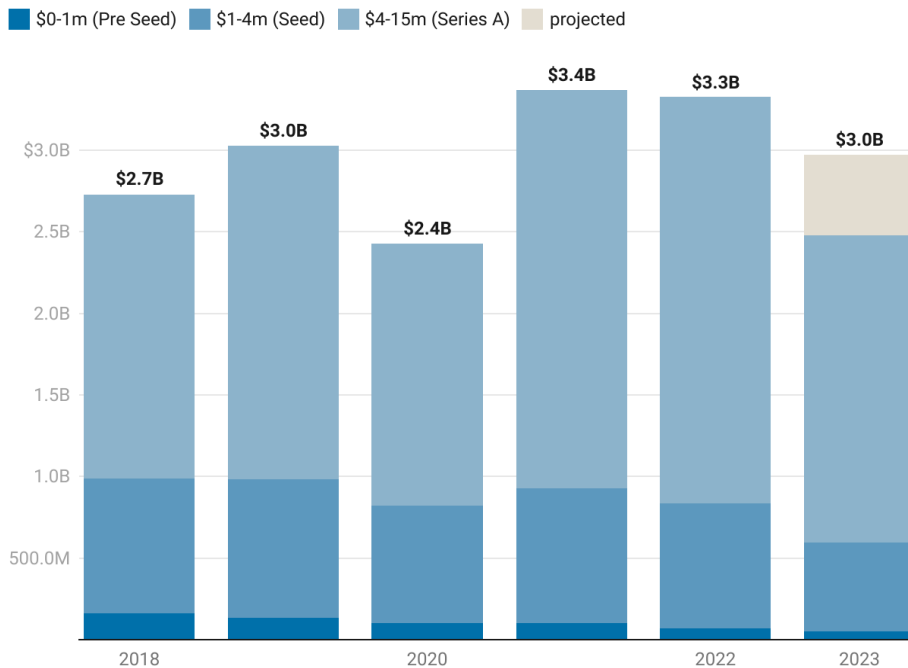
When examining the investments by stage, deep tech VC investments in early-stage startups (*pre-seed and up to Series A*) have demonstrated a modest increase over the last three years. The funding amounted to \$2 billion in 2020, returning to pre-pandemic levels at \$3 billion in both 2021 and 2022. Concerning breakout stage (*Series B and C*) and late-stage investments, the figures nearly doubled when compared to 2020. The breakout stage witnessed an increase from \$4 billion in 2020 to \$7 billion in 2021 and \$8 billion in 2022. Similarly, late-stage investments rose from \$4 billion in 2020 to \$11 billion in 2021 and \$8 billion in 2022.

In terms of early-stage investments, the overall investment amount has shown a gradual increase, rising from \$2.7 billion in 2018 to \$3 billion in 2023. Notably, the Series A round attracted the largest investment, totalling \$2.5 billion in 2022.

- Pre-seed investments reached their lowest point in 2023, amounting to only \$49.1 million, which is less than half of the investments recorded in 2020, totalling \$102.3 million.
- When it comes to seed investments, the figures indicate a fluctuating trend. In 2022, seed investments amounted to \$769.4 million, slightly surpassing the \$718.4 million recorded in 2020. However, in 2023, there was a decline, with seed investments totalling \$544.1 million.

- For Series A investments, the funding landscape experienced variations over the years. Notably, there was an upswing from \$1.6 billion in 2020 to \$2.4 billion in 2021 and a subsequent modest rise to \$2.5 billion in 2022. However, in 2023, Series A investments registered a decrease, settling at \$1.9 billion.

European Deep tech startup-stage investment (\$0-15M rounds)

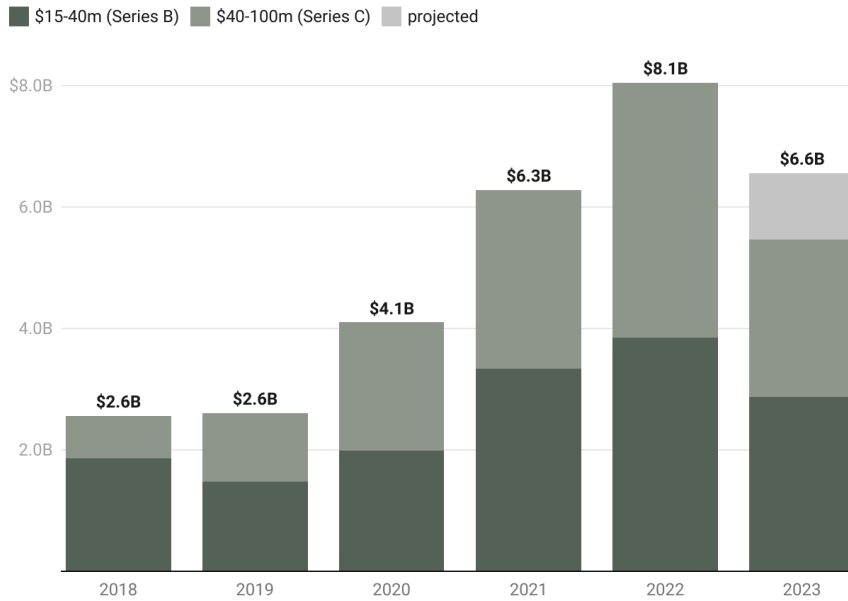


Source: Dealroom.co

In the breakout stage, representing Series B and C investments in deep tech startups, the funding landscape witnessed significant growth. The investments totalled \$2.6 billion both in 2018 and 2019, rose to \$4.1 billion in 2020, further increased to \$6.3 billion in 2021, reached \$8.1 billion in 2022, and surged to \$6.6 billion in 2023.

- For series B investments, the funding landscape experienced notable growth. The investments amounted to \$1.9 billion in 2018, increased to \$2 billion in 2020, further rose to \$3.3 billion in 2021, reached \$3.8 billion in 2022, and peaked at \$2.9 billion in 2023.
- Series C investments in deep tech startups also experienced significant growth. The investments amounted to \$699.2 million in 2018, increased to \$2.1 billion in 2020, further rose to \$2.9 billion in 2021, reached \$4.2 billion in 2022, and peaked at \$2.6 billion in 2023.

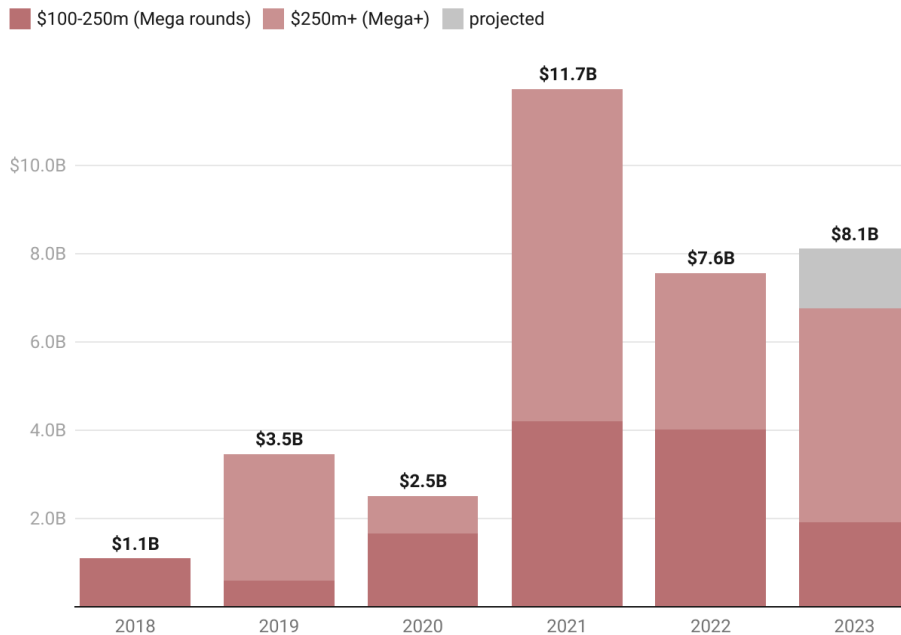
European Deep tech breakout stage investment (\$15-100M rounds)



Data as of 3rd Oct 2023
Source: Dealroom.co

Finally, late-stage investments, a crucial aspect to consider, witnessed a remarkable surge from \$2.5 billion in 2020 to an astonishing \$11.7 billion in 2021. However, this momentum shifted, resulting in figures of \$7.6 billion in 2022 and \$8.1 billion in 2023.

European Deep tech scaleup-stage investment (\$100M+ rounds)



Data as of 1st November 2023
Source: Dealroom.co

2.2.1 Deep tech Investments by Industry

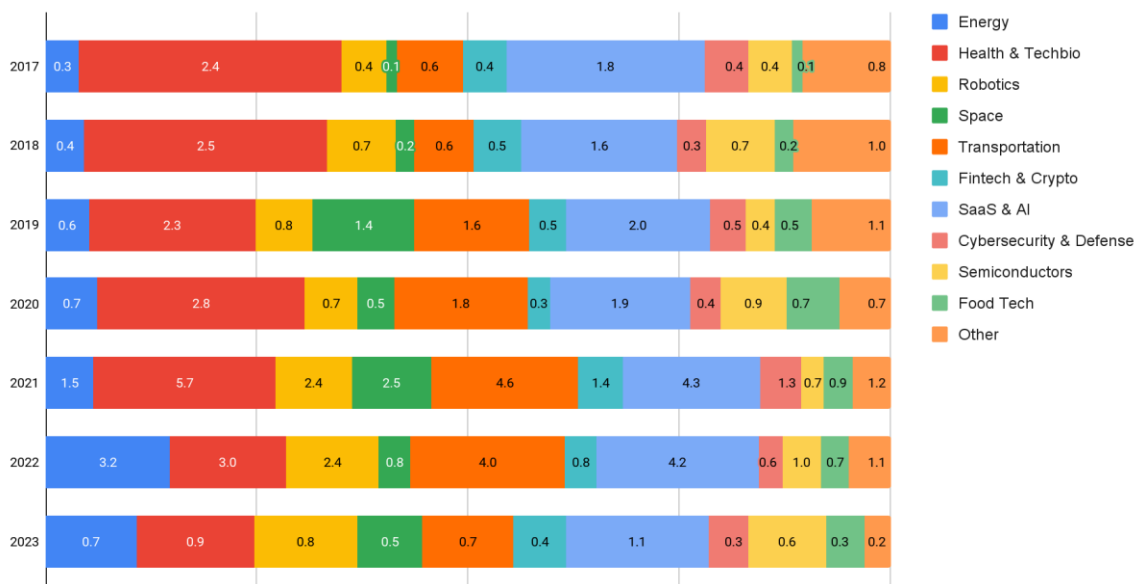
Deep Tech encompasses many industries, from Health, SaaS and AI, and Space to Transportation and Robotics. Since 2016, Health & Techbio has emerged as the leading recipient of VC funding in the Deep Tech sector, closely trailed by SaaS & AI and Transportation. Notably, Robotics, Energy, Space, and Semiconductors have also garnered significant funding within this landscape. In 2023, SaaS & AI has secured the top spot in investment with \$1.1 billion, fueled by the momentum of the generative AI wave. Following closely are Health & Techbio with \$0.9 billion, Robotics with \$0.8 billion, and Energy and Transportation, both at \$0.7 billion. Here is some sector-specific data:

- The Energy sector witnessed a steady rise in investment from \$0.3 billion in 2017 to \$0.7 billion in 2020. The trend continued with a notable surge to \$1.5 billion in 2021 and a further increase to \$3.2 billion in 2022. However, there was a decline to \$0.7 billion in 2023.
- The Health & Techbio sector experienced substantial growth, with investments reaching \$2.4 billion in 2017 and further increasing to \$2.8 billion in 2020. The sector saw a significant boost to \$5.7 billion in 2021 but witnessed a decline to \$3 billion in 2022 and a further decrease to \$0.9 billion in 2023.
- The Robotics sector displayed notable growth, recording \$0.4 billion in investments in 2017, followed by an increase to \$0.7 billion in 2020. The sector experienced a substantial surge to \$2.4 billion in 2021, maintaining a similar level in 2022. However, there was a decline to \$0.8 billion in 2023.
- The Space sector also exhibited notable growth, with investments amounting to \$0.1 billion in 2017. Subsequently, there was a notable increase to \$0.5 billion in 2020, followed by a substantial surge to \$2.5 billion in 2021. The sector maintained a significant level of investment in 2022 at \$2.4 billion but experienced a decrease to \$0.8 billion in 2023.
- The Transportation sector witnessed a great trajectory, starting with \$0.6 billion in 2017, a considerable increase to \$1.8 billion in 2020, followed by a substantial surge to \$4.6 billion in 2021. The sector maintained a significant level of investment in 2022 at \$4.0 billion but experienced a decrease to \$0.7 billion in 2023.
- The Fintech & Crypto started with \$0.4 billion in 2017 and underwent a decrease to \$0.3 billion in 2020, followed by a notable increase to \$1.4 billion in 2021. Although there was a subsequent decrease to \$0.8 billion in 2022, the trend continued with a further decrease to \$0.4 billion in 2023.
- The SaaS & AI recorder investments of \$1.8 billion in 2017, experienced a slight increase to \$1.9 billion in 2020, followed by a substantial surge to \$4.3 billion

in 2021. Despite maintaining a high level in 2022 at \$4.2 billion, the sector encountered a decline, reaching \$1.1 billion in 2023.

- The Cybersecurity & Defense sector witnessed steady investment patterns, with \$0.4 billion in 2017, it maintained a similar level at \$0.4 billion in 2020. Subsequently, there was a notable increase to \$1.3 billion in 2021. However, the sector experienced a decline, settling at \$0.6 billion in 2022 and further decreasing to \$0.3 billion in 2023.
- The Semiconductors accounted for \$0.4 billion in 2017. It saw an increase to \$0.9 billion in 2020. Following this, there was a slight decrease to \$0.7 billion in 2021. However, the sector rebounded in 2022 with a notable rise to \$1 billion, only to experience a modest decline, reaching \$0.6 billion in 2023.
- The Food Tech sector underwent fluctuations in investment over the years, from \$0.1 billion in 2017 to \$0.7 billion in 2020. Subsequently, there was a further rise to \$0.9 billion in 2021. However, the sector experienced a decline, reaching \$0.7 billion in 2022, followed by a notable decrease to \$0.3 billion in 2023.
- In the broader spectrum of other sectors, in 2017 they recorded \$0.8 billion, followed by \$0.7 billion in 2020. A subsequent increase was observed, with the figure reaching \$1.2 billion in 2021. However, there was a decline in the succeeding years, settling at \$1.1 billion in 2022 and experiencing a notable decrease to \$0.2 billion in 2023.

European Deep Tech VC Funding by Industry (2017-2023) in Billion USD



2.2.2 Deep tech Investments by Technology

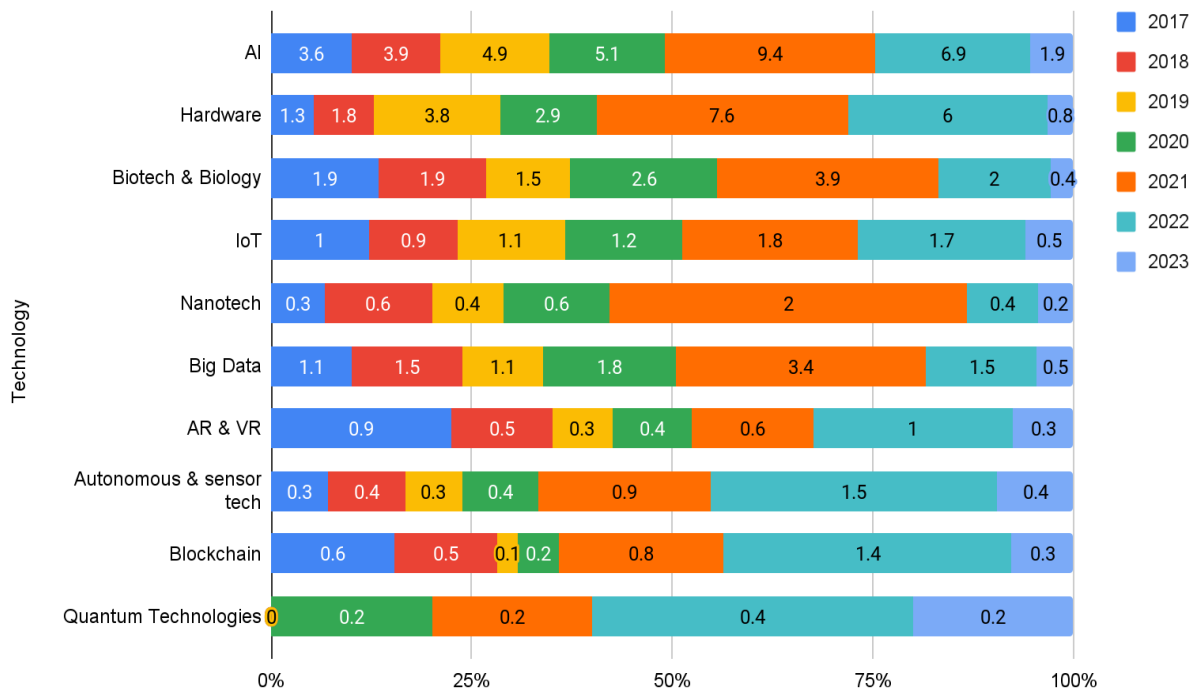
Deep Tech startups often involve a blend of various technologies, employing an integrative strategy that empowers them to harness the collective capabilities of advanced science, engineering, and design. In the European market, a select few technologies stand out, attracting the most capital.

Since 2016, AI has consistently been the primary recipient of VC funding, closely followed by Hardware, Big Data, IoT, and Biotech & Biology. AI has always secured the highest VC funding, with Hardware and Biotech & Biology alternating between the second and third positions. Here are some highlights of the monetary inflows and standout performers:

- AI, a pivotal technology, experienced substantial growth in investments from \$3.6 billion in 2017, reaching its zenith at \$9.4 billion in 2021. However, in 2023, it underwent a significant decline, recording \$1.9 billion in investments, reflecting a dynamic trend in funding over the years.
- Hardware displayed varying patterns over the years. Beginning at \$1.3 billion in 2017, it experienced an uptick to \$2.9 billion in 2020. It witnessed robust growth, reaching its zenith at \$7.6 billion in 2021. However, a substantial decline occurred in 2022, with investments decreasing to \$6 billion, and this downward trajectory continued in 2023, marking only \$0.8 billion in investments.
- Biotech & Biology demonstrated fluctuations over the years. Commencing at \$1.9 billion in 2017, it experienced a slight increase to \$2.6 billion in 2020. Subsequently, there was further growth, reaching \$3.9 billion in 2021. However, it faced a decline, with investments decreasing to \$2 billion in 2022, followed by a substantial drop to \$0.4 billion in 2023.
- Investments in IoT recorded \$1 billion in 2017. It experienced a modest increase to \$1.2 billion in 2020. Subsequently, there was notable growth, reaching \$1.8 billion in 2021. However, the sector faced a decline, with investments decreasing to \$1.7 billion in 2022, followed by a significant drop to \$0.5 billion in 2023.
- In 2017, Nanotech investments were at \$0.3 billion. It experienced a peak in 2021 with \$2 billion, a substantial increase from \$0.6 billion in 2020. Nevertheless, it encountered a decline, with investments decreasing to \$0.4 billion in 2022, and further dropping to \$0.2 billion in 2023.
- Big Data investments stood at \$1.1 billion in 2017. The sector witnessed nearly a twofold increase, reaching \$3.4 billion in 2021 from \$1.8 billion in 2020. Nevertheless, it encountered a decline, with investments decreasing to \$1.5 billion in 2022, and further dropping to \$0.5 billion in 2023 – marking a threefold decrease.

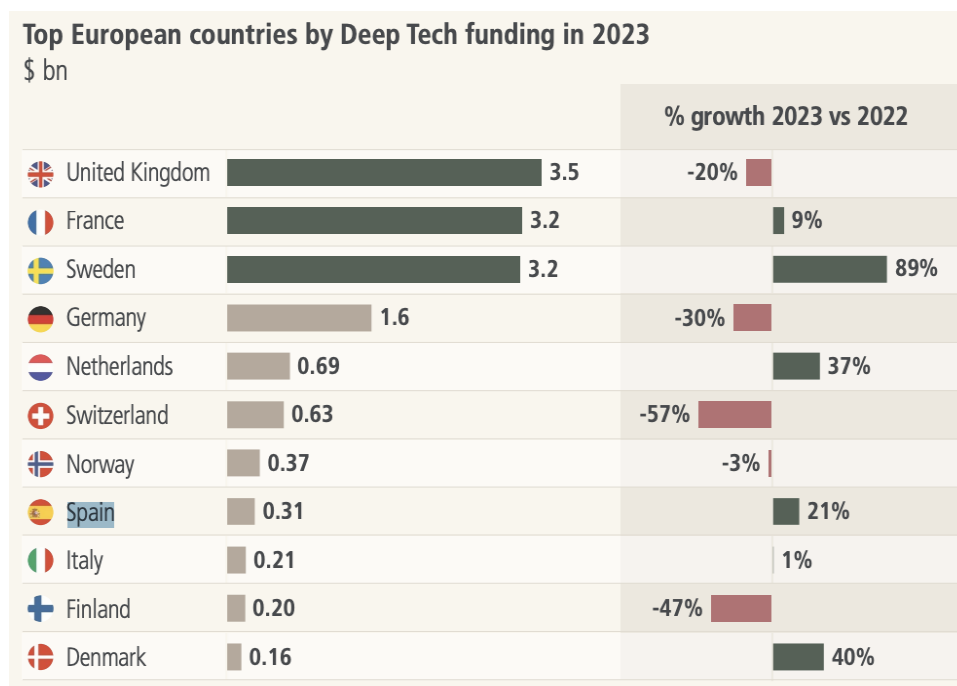
- Regarding AR&VR, Autonomous & sensor tech, Blockchain, and Quantum Technologies, the investment trends followed a slightly different pattern, with 2022 marking the peak year for the investments. However, substantial decreases were also observed for these technologies in 2023.

European Deep Tech VC Funding by Technology (2017-2023) in Billion USD



2.2.3 Deep tech Investments by Geography

According to data compiled by Dealroom in its last [European Deep Tech Reports](#), the United Kingdom has maintained its position as the leading European country for deep tech investment over the past three years. In 2023, the recorded investment was \$3.5 billion, reflecting a 20% decrease compared to the \$5.1 billion in 2022. However, this still represents a notable decline of 37% compared to the figures reported in 2021.

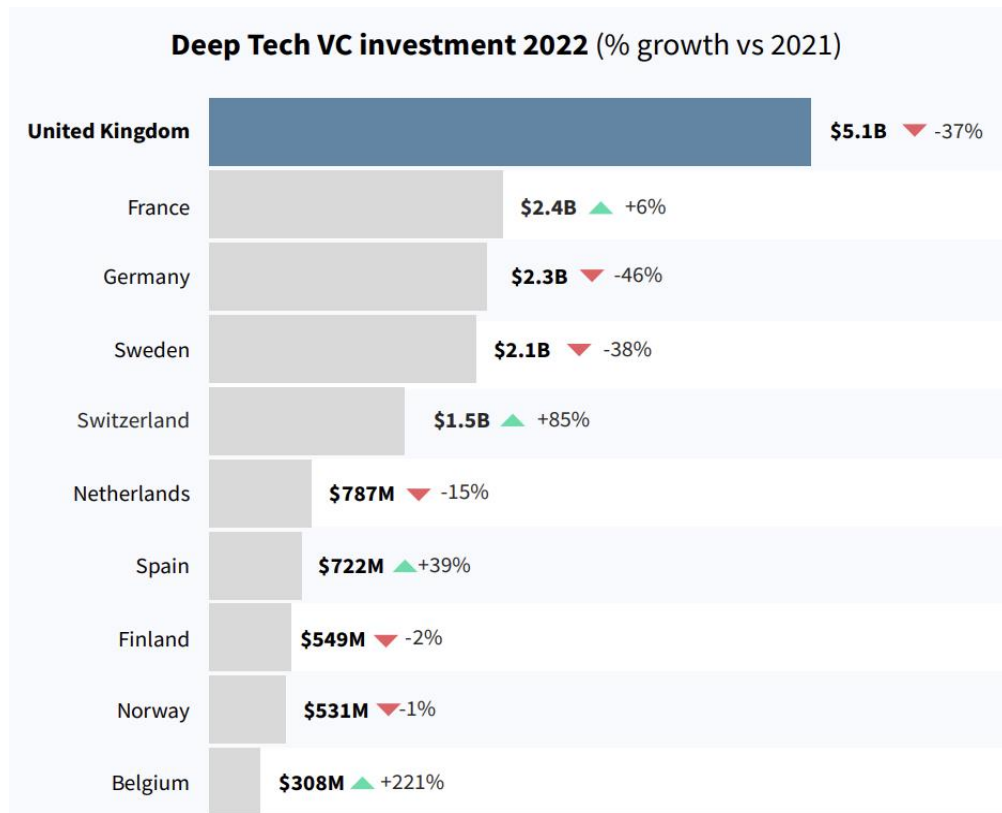


Following closely is France, which has been steadily and modestly growing in the deep tech sector. In 2023, the recorded investment amounted to \$3.2 billion, marking a 9% increase compared to the \$2.4 billion recorded in 2022, which represented a 6% increase compared to the numbers reported in 2021.

Germany secured the third position in 2022 with a total deep tech investment of \$2.3 billion, but experienced a 30% decrease in 2023, dropping to the fourth position with \$1.6 billion.

In contrast, Sweden, which recorded \$2.1 billion in 2022 (a 38% decrease from 2021), witnessed a substantial 89% increase in total funding, reaching \$3.2 billion in 2023. This advancement positioned Sweden in third place, closely following France.

Netherlands, Spain, and Denmark saw significant rises in VC funding, marking increases of 37%, 21%, and 40% respectively compared to 2022.



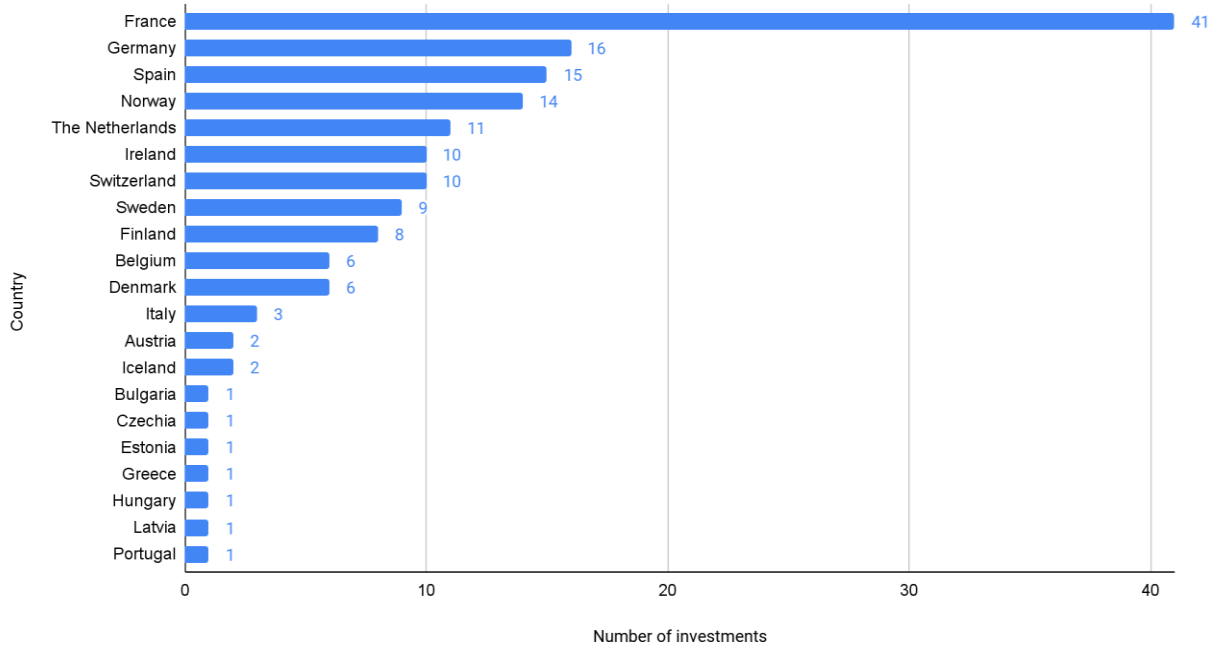
2.2.4 Deep tech Investments within the European Union

In November 2023, the European Innovation Council (EIC) Fund announced the approval of nearly €1 billion in investments for deep tech companies, within a year since its inauguration. As the venture investment arm of the European Innovation Council under Horizon Europe, the EIC Fund supports groundbreaking technologies.

Since 2022, 161 start-ups and SMEs, selected through the EIC Accelerator programme, have received investment approval, establishing the EIC as a preferred investor for European deep tech ventures. The selection process involves rigorous evaluation by external experts and thorough due diligence by the European Investment Bank. Successful companies have a 12-month window to secure co-investors, and 71 firms have already attracted co-investments, totalling three times the EIC Fund amount. Additionally, companies benefit from grant support, up to €2.5 million, and access to expertise, partnerships, and market opportunities through EIC business acceleration services.

Based on the available data, France stands significantly ahead with 41 recorded investments, leading the list. Following behind are Germany with 16 investments, Spain with 15, Norway with 14, the Netherlands with 11, and both Ireland and Switzerland each accounting for 10 investments.

EIC Fund Portfolio (by country and number of investments)



In terms of industries, engineering and technology startups lead the way with 48 investments (France - 13, Germany - 7, Norway and Spain - 5 each), followed by health startups with 38 (France - 6, Netherlands, Ireland - 5 each, Switzerland - 4). Additionally, there are 18 investments (France - 4, Germany and Spain - 3 each) in the ICT sector, 14 (France and Spain - 4 each) in the energy sector, and 11 (France - 4) in biotechnology.

EIC Fund Portfolio (by Country and Industry)

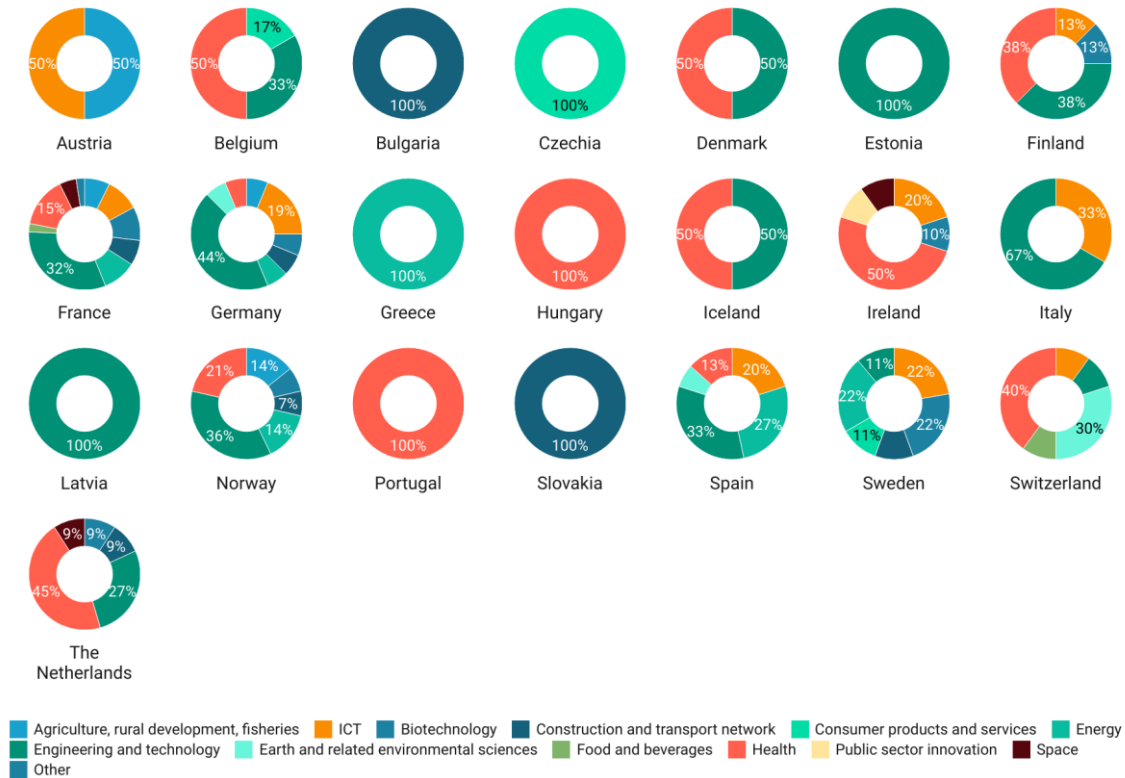


Chart: Techcelerator • Source: European Innovation Council • Created with Datawrapper

Deep tech is continually evolving, and new segments emerge rapidly. To enhance understanding, EIT has identified 15 critical domains in the realm of deep tech, including:

1. Advanced computing / Quantum computing
2. Artificial intelligence and machine learning, including big data
3. Electronics and photonics
4. Advanced manufacturing
5. Biotechnology and life sciences
6. Internet of things, W3C, semantic web
7. Advanced materials
8. Communications and networks, including 5G
9. Robotics
10. Aerospace, automotive and remote sensing
11. Cybersecurity and data protection
12. Semiconductors (microchips)
13. Sustainable energy and clean technologies
14. Web 3.0, including blockchain, distributed ledgers, and NFTs
15. Virtual reality, augmented reality, metaverse

○ 2.3 Deep tech Investors

Deep Tech startups receive support from various stakeholders throughout their development stages. Initially, university research and government grants fund early lab research, followed by dedicated Deep Tech investors financing product development until the early go-to-market phase. Corporates may also play a role in supporting both lab research and product development.

However, a crucial gap does exist - both at the beginning of the journey (as deep tech requires an extended research and development phase) and in the advanced go-to-market and scaling/commercialization phase. During this phase, Deep Tech startups require a lot of support. Bridging this gap is essential to ensure a smooth transition from early-stage research to successful commercialization. Therefore collaborative efforts and partnerships among research institutions, specialized Deep Tech investors, angel investors, corporates, and VC funds are essential to fill this gap.

2.3.1 Types of Investment Support for Startups and Scaleups

In the dynamic landscape of European deep tech innovation, startups and scaleups play a pivotal role in pushing the boundaries of what's possible. To fuel their ambitious endeavours, these companies require robust financial backing. Subsequently, we will explore the various forms of investment support that are accessible to them.

Early support (concept generation, analytical proof, research)

- **University Research** (most of the journeys often begin in academia, where university research acts as the foundation for deep tech breakthroughs)
- **Government grants and research funding** (most of the time they support initial lab work, providing grants, loans, and subsidies to support technology and innovation)
- **Horizon Europe** (This is the European Union's flagship research and innovation program. It offers funding for various deep tech projects, including the European Innovation Council (EIC) Accelerator for startups and SMEs)
- **European Structural and Investment Funds** (ESIF provides funding to support research, innovation, and entrepreneurship in various EU regions. It includes the European Regional Development Fund (ERDF) and the European Social Fund (ESF))
- **InnovFin** (Managed by the European Investment Bank (EIB), InnovFin Advisory provides consultancy services for potential deep tech spin-off, and

other types of public and private entities, financing and guarantees for innovative companies (requiring minimum 15 mil investment in RDI activities and are fit to the Horizon 2020 program objectives)

- **European Space Agency** (ESA provides funding for startups and entrepreneurs working on space-related technologies and applications)
- **Angel Investors** (These investors can be individuals, organisations, or pan-European entities contributing vital capital and mentorship.
 - Ventures Together invests in pre-seed and seed stage rounds across sectors and geographies across Europe. It has more than 150 members who decide whether to invest on a deal-by-deal basis. Angels have to commit a threshold of around £20k for the investment to be approved.)
 - SFC Capital is a SEIS and EIS fund — a scheme by the UK government which aims to incentivise people to support early-stage British companies by offering income tax relief (50% on SEIS up to £200k and 30% on EIS up to £1m a year) on investments)
 - Deeptech Angels is a leading professional funding and acceleration platform bridging deep tech startups with high net worth clients. We build investor syndicates to deploy seed capital into strong teams and work with them to accelerate their progress towards series A.
 - FiBAN (Finnish Business Angels Network) invests in seed-stage startups, and its network is made up of angel investors across the Nordics and Baltics.
 - Green Angel Ventures is an angel syndicate focusing on climate tech startups.
 - DEPO Ventures has over 200 angels involved and has managed angel funds as well as a syndicate of individual investors. Its angel funds focus on tech startups at the pre-seed and seed stage, based across central and Eastern Europe
 - BADideas.fund is an angel investor syndicate that focuses on startups in central and eastern Europe, BADideas.fund invests between €50k and €100k in companies that have a minimum viable product. It often offers a startup's first cheque, and allows investors to contribute as little as €1k per deal.
 - WIT Angels Club is an all-women investment team that backs impact startups (co-)created by women.
 - European Business Angels Network (EBAN) is the pan-European representative for the early-stage investor community gathering over 100 member organizations in more than 50 countries today.
 - Business Angels Europe (BAE) represents more than 40000 angel investors from the most advanced European angel ecosystems

- European Super Angels Club (ESAC) is a pan-European co-investment and networking club for super business angels, high-net-worth individuals, family offices, venture capital firms and corporate innovation units.
- European Angels Fund (EAF) is an initiative advised by EIF which provides equity to Business Angels and other non-institutional investors for the financing of innovative companies in the form of co-investments.
- **Crowdfunding** (Platforms like Crowdcube and Seedrs enable startups to raise capital from a broad base of investors)
- **Accelerators and Incubators** (these programs not only provide funding but also mentorship and resources. For example: StartupYard, Sting, I3P, imec.istart, Next Floor etc.)
- Debt Financing (startups can access loans and debt financing from banks, fintech lenders, and organisations specialising in startup debt)
 - Grants from Foundations and Competitions (Various foundations and organisations offer grants, prizes, and competition opportunities for deep tech startups. For instance, the European Institute of Innovation and Technology (EIT) runs competitions and accelerators)

Mid-Stage Financing (real-world testing, proof-of-concept)

- **Corporate Venture Capital (CVC):** Many large corporations have their own venture capital arms that invest in startups relevant to their industries. It is the case of Siemens, Bosch, Airbus, Telefonica, ING Group and others, all situated in countries categorized as either Innovation Leaders or Strong Innovators. Conversely, within Moderate and Emerging Innovators, the allocation of CVC funding tends to be more limited, primarily due to the geographical concentration of decision-makers and budgets in Western countries. However, there are exceptions, with some active examples found in the banking sector, where certain institutions have established and fostered startup programmes (factory by RAIFFEISEN BANK, Romania).
- **European Investment Fund (EIF)** plays a broader role in providing financial instruments to support the growth and sustainability of businesses, including those in the innovation and deep tech sectors.

Late-Stage Financing

- **Venture Capital (VC):** Numerous VC firms in Europe focus on deep tech investments. Examples include Accel, Atomico, Balderton Capital, and Index Ventures, among others.

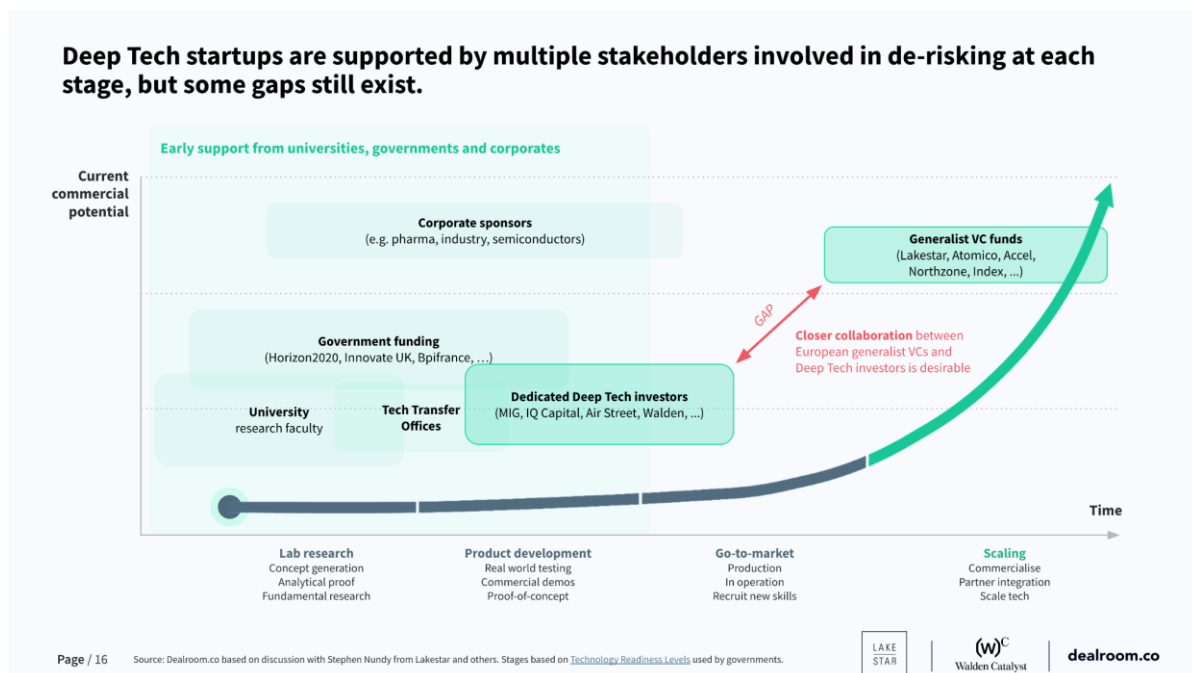
Here can be found the Top of the best Venture capital firms in Europe in 2024. And Vestbee published Top 100 VC Funds from CCE (in May 2022). Moreover, there are some declared deep tech investors in Europe who pursue deep tech ventures with the most rapid and global potential.

- Elaia
- APEX Ventures
- Vsquared Ventures
- IQ Capital
- Atomico
- Seraphim Space
- UVC Partners
- Jolt Capital
- Quantonation
- AirStreet Capital
- DeepTech Labs
- Voima Ventures
- Conception X
- Oxford Science Enterprises
- Cambridge Innovation Capital
- High-Tech Gründerfonds
- Hoxton Ventures
- Promus Ventures
- Lunar VC
- 2xN
- Silicon Roundabout Ventures
- Lakestar
- Herius Capital
- DeepTechXL
- Sunfish Partners
- Octopus Ventures
- Earlybird
- Index Ventures
- b2Ventures
- SOSV
- Supernova Invest
- Speedinvest
- Verve Ventures
- Amadeus Capital Partners
- DeepTech & Climate Fonds (DTCF)
- Faber
- Aenu
- OTB Ventures
- The FundingBox Deep Tech Fund
- Innovation Industries
- 01Ventures
- Curiosity Ventures
- Outsized Ventures
- Walden Catalyst
- Adara Ventures
- Black Pearls VC
- Armilar Venture Partners
- Butterfly Ventures
- OpenOcean Ventures
- 360 Capital
- Industria
- Science Creates
- Space Ventures Investors
- Vigo Ventures
- HCVC
- Progress Tech Transfer Fund
- Invest NL
- Ahren Innovation Capital
- Freigeist
- Fly VC
- Cottonwood VC
- MIG Capital
- Balderton
- DeepTech Equity NL
- Aper Venture

Source: Vestbee, Top Deep Tech VC Funds Investing in Europe, 3.10.2023

- **Strategic Partnerships** (Partnering with larger companies providing startups with capital, access to resources, expertise, and markets)
- **Co-Investments** (Collaboration becomes paramount in the late stages. Startups work towards attracting co-investors, often with the assistance of initial backers, to further validate their market potential and secure substantial funding.)

According to Dealroom’s evaluation of more than 50 specialised Deep Tech funds in Europe, the majority of them concentrate on early-stage funding and cannot take the lead in Series B and beyond. The average funding for Deep Tech Series B rounds is €30 million, requiring a substantial commitment, typically around €15 million, from the lead investor, assuming a 50% capital share. To adequately support approximately 20 investments at this stage, a fund would need to be around €300 million. However, more than 90% of European Deep Tech specialist investors operate with fund sizes below €300 million, making it challenging for them to lead Series B+ financing rounds. Beyond financial constraints, early-stage investments face additional hurdles, including finding the right balance between **technology and business focus**, articulating a clear and compelling business model, understanding customer needs, demonstrating market understanding, ensuring an ideal fit with investors, and providing a robust **exit strategy**. These multifaceted challenges contribute to the complexity of navigating the Deep Tech investment landscape in Europe.



○ 2.4 Assessing the Gaps and Challenges of the European Investment Ecosystem

Deep tech startups stand at the forefront of technological innovation, harnessing advanced technologies such as AI, blockchain, quantum computing, and sustainability to tackle intricate challenges and shape the future landscape. In 2024, these startups are leading the charge in revolutionising industries and addressing global issues. With the proper backing in terms of support, funding, and collaboration, deep tech startups are poised to disrupt traditional business models and propel societal progress in the years ahead.

As we gaze into the future, it becomes imperative for investors, policymakers, and industry leaders to acknowledge the tremendous potential embedded within deep tech startups. Providing the necessary resources and support becomes paramount to nurture their growth. Through collective efforts, we can unlock a myriad of possibilities, steering the trajectory of technology towards a better and more impactful tomorrow.

2.4.1 Deep tech scaleups main challenges (our findings)

The reader should note that this section serves as a preliminary dissemination of the exploratory and initial findings derived from interviews conducted within the ambit of the research project. In consequence, the insights and stances delineated herein may not fully encapsulate the perspectives of the consortium's partners in their entirety.

The Geographic Divide: Navigating the Challenges and Opportunities for Scaleup Founders in Accessing Capital

The impact of a founder's country of origin on access to capital for scaleups appears to vary significantly.

Founders from emerging countries, particularly Eastern Europe, encounter scepticism and reduced engagement from venture capitalists (VCs) in leading and highly innovative countries. This sentiment is exemplified by an Eastern European founder of a technology startup that has garnered substantial recognition at the EU level. Despite their success, a VC manager from a more innovative country suggested that their interest would have been piqued much sooner had the founder been from their own country, highlighting the challenges and trust issues faced when securing funding.

Conversely, other founders within these emerging regions argue that geographical origin is less critical if the product has high potential and is presented proficiently. Founders who are more optimistic and resilient emphasize the

importance of a compelling product, a coherent market entry strategy, and a motivated team with a clear vision. They believe these elements are key to attracting investment with relative ease, indicating that excellence in product development and presentation can overcome biases related to geographical origin.

Interestingly, founders from countries recognized as leaders or strong innovators do not report experiencing these challenges. This discrepancy underscores the varying experiences of founders based on their geographic location, with those in emerging regions facing unique hurdles not encountered by their counterparts in more established markets.

Growth Potential and Funding Accessibility: The Strategic Alignment Challenge for Startups Across Markets

The growth potential is a pivotal factor in securing funding, particularly for nascent enterprises. When a startup, especially one based in a non-Western European market, seeks investment and its Monthly Recurring Revenue primarily originates from its domestic market, it may find the negotiation outcomes with Western European investors to be less favourable. This scenario underscores the critical need for startups to synchronize their go-to-market and funding strategies, ensuring that key performance indicators appealing to investors are robustly in place.

Moreover, startups from stronger economies are not exempt from facing their own set of hurdles. Challenges emerge, for instance, when these businesses operate headquarters in both stronger and moderate economies, affecting their valuation during fundraising efforts.

Enhancing selling skills: A Key Challenge for Founders in Moderate and Emerging Economies

It has been noted on several occasions that founders in moderate and emerging economies often lack advanced selling and marketing skills. Despite these regions being celebrated for their globally recognized technical talent, which attracts the attention of venture capital managers from more innovative ecosystems, there remains a significant need for these founders to bolster their selling capabilities. This skill gap underscores the critical importance of not just developing innovative products but also mastering the art of selling them effectively to thrive in the competitive global market.

Bridging the Business Knowledge Gap: Progress and Challenges for Deep Tech Founders

Research highlights a discernible gap in business expertise between deep tech founders from leading and highly innovative countries and those from emerging and moderate innovation nations. However, the past 5-8 years have seen commendable strides in the latter's ecosystem to elevate the business acumen of founders. There's been a significant uptick in supportive initiatives, including the proliferation of accelerators, incubators, public programs for SMEs, technology-focused events, and thematic webinars—most of which are accessible to founders at no cost. Additionally, the landscape of funding opportunities has expanded, with the emergence of new venture capital funds, business angel groups, and crowdfunding platforms, marking a promising shift towards leveling the playing field in global innovation.

Assessing Investment Readiness Across Deep Tech Ecosystems

The investigation into whether deep tech founders from four distinct country categories exhibit differences in investment readiness skills yielded inconclusive results. However, the research did uncover that founders with an academic background—researchers and innovators working on products at earlier stages of market readiness—tend to show a lower level of investment readiness, irrespective of their ecosystem's innovation level. This group particularly benefits from targeted support to enhance their funding acquisition capabilities.

Notably, countries previously classified as less innovative have made substantial progress in improving their investment landscape over the last 3-5 years. Deep tech founders in these regions now enjoy access to active local stakeholders who offer quality programs and support designed to bolster investment skills.

Contrastingly, a deep tech founder from France, identified as originating from a "Strong Innovator" country, shared their struggles with the investment process. They expressed a desire for more comprehensive support during the due diligence phase and while navigating deal room documentation, indicating a universal need for enhanced investment readiness support across varying innovation ecosystems.

Unpacking Investment Readiness: Variances and Needs Across Deep Tech Ecosystems

The degree of investment readiness among deep tech founders across four categorically different countries remains ambiguous, according to recent

interviews. The findings indicate a notable disparity in investment readiness expertise, particularly among founders emerging from academic settings. These individuals, often researchers and innovators developing products at early stages of market maturity, display a pronounced need for support in funding efforts, regardless of their ecosystem's classification.

In a positive light, regions previously identified as less innovative have witnessed marked improvements in investment conditions over the past 3-5 years. This evolution has equipped deep tech founders with better access to local stakeholders committed to providing high-quality programs and support, aimed at enhancing their investment acumen.

Conversely, feedback from a deep tech founder in France—a country recognized for its strong innovation—highlights challenges encountered during the investment process. The team's experience underlines a universal requirement for additional support, particularly in areas such as due diligence and navigating deal room documents. This suggests that even in more innovative ecosystems, there exists a gap in providing the requisite guidance to navigate the intricacies of securing investment effectively.

Challenges and Decisions: Deep Tech Founders on Staying or Relocating

A respondent's stark assertion, "There is no investor for deep tech in Europe!" underscores a significant challenge within the European investment landscape. This claim further elaborates that most European investors are perceived as being risk-averse, particularly concerning the inherently higher risks and longer market lead times associated with deep tech ventures. This cautious stance by many venture capital funds in Europe has led to a reluctance to support deep tech investments, contrasting with the more aggressive investment strategies observed from US and Asian investors. These overseas investors often condition their financial backing on the founders relocating their companies to the investor's region.

Research indicates that deep tech founders are increasingly of the belief that moving their operations to ecosystems known for their innovation—relative to their countries of origin—would significantly bolster their growth prospects. This sentiment reflects a broader trend where founders are weighing the benefits of accessing more robust and risk-tolerant investment networks against the challenges of uprooting and adapting to new business environments.

Overcoming the Technology Hurdle: The Path to Investment for Deep Tech Ventures

In the realm of deep tech businesses, the challenge of technological risk far outweighs the market risk. The pivotal moment for founders lies in their ability to demonstrate both the feasibility of their technology and its potential for adoption. Successfully navigating this phase significantly reduces perceived risk and notably heightens interest from venture capitalists. This scenario is universally encountered by deep tech founders, irrespective of their geographical origins, highlighting a critical milestone in the journey towards securing investment and scaling their innovations.

Navigating the Path to Market: The Crucial Role of Investor Insight and Patience in Deep Tech

Deep tech ventures, characterized by their extended timelines to market, necessitate investors who possess a profound understanding of the product's industry and exhibit exceptional patience. The process of building trust and credibility plays a central role in this journey. A company that is registered within a more developed and innovative ecosystem, even if led by a founder from a less innovative country, stands a better chance of securing funding compared to one headquartered in regions with less mature markets. Interviews have further revealed that cultivating trust with potential investors is a slow and painstaking process, underscoring the importance of strategic positioning and relationship-building in the quest for investment.

Evaluating Gender Diversity & Inclusion in Deep Tech Ecosystems: Insights and Challenges

Feedback from 20 interviewees, encompassing both investors and founders, paints a nuanced portrait of gender diversity and inclusion within deep tech ecosystems. There's a consensus that, despite observable strides towards inclusivity, significant hurdles persist.

An Eastern European founder from a modest ecosystem observed that gender diversity and inclusion remain pressing issues. She acknowledged the presence of initiatives aimed at fostering gender diversity, such as women-led incubators and organizations like Women in Tech. However, she critiqued these efforts as insufficient, pointing out an ongoing investor bias favouring male-led startups, which complicates fundraising efforts for female founders.

Echoing this sentiment, another respondent underscored the need for persistent efforts to enhance gender diversity and inclusion, highlighting the underrepresentation of women in STEM fields as a fundamental barrier within the deep tech sector. Moreover, the dominance of male figures in the ecosystem was cited as contributing to an unwelcoming atmosphere for women.

Conversely, a French founder noted a positive shift towards recognizing the importance of gender diversity and inclusion within France's deep tech ecosystem. Indicative of this change is the emerging investor interest in diverse teams and the active search for female-led startups. In Romania, a nascent innovation hub, the establishment of BRAVVA Angels, a group of business angels investing in mixed teams and encouraging female leadership in startups, marks a significant step forward.

These insights collectively indicate that while progress is being made in some areas, the journey towards achieving gender parity in deep tech is far from complete. The mixed experiences shared by interviewees highlight both advancements and enduring challenges, underscoring the necessity for continued, concerted efforts to cultivate a more inclusive and equitable deep tech.

Emerging Themes in Deep Tech: Addressing Diversity and Fostering Female Entrepreneurship

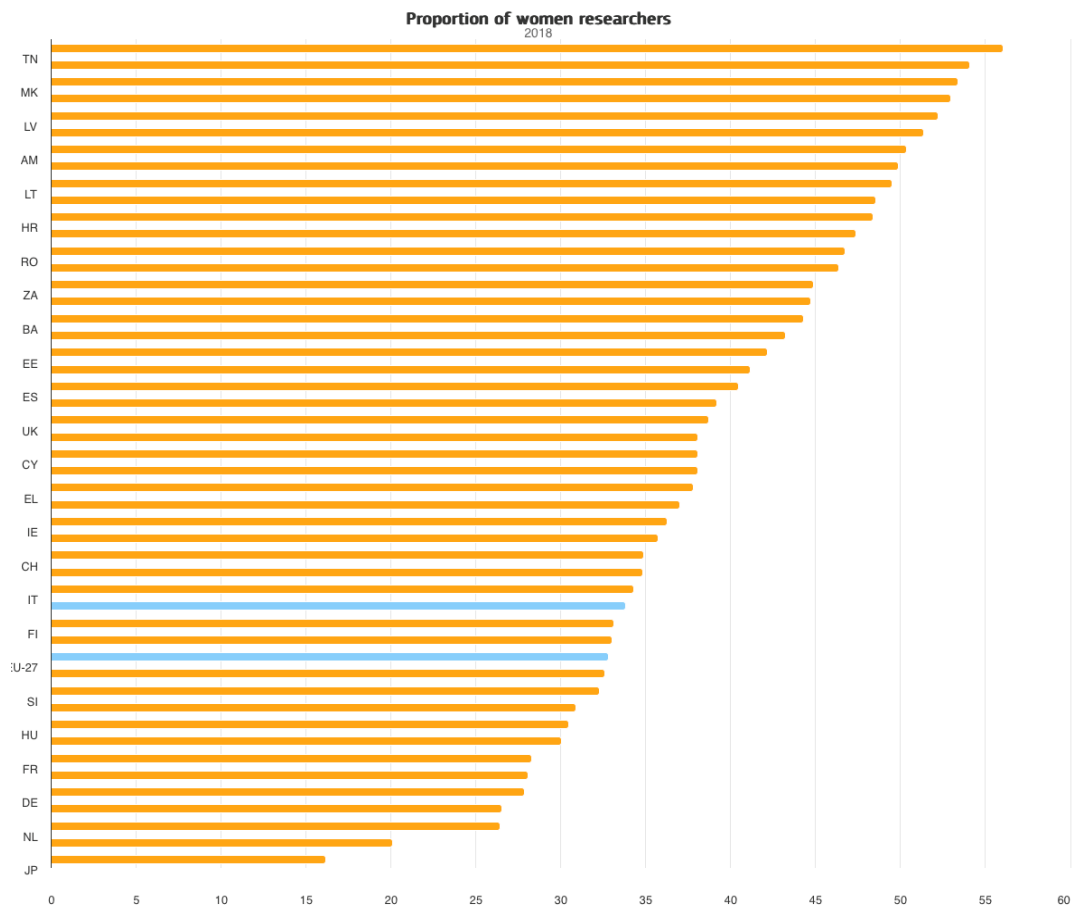
The main findings from our research underscore some critical issues within the deep tech sector:

- A significant **lack of diversity** among founder teams in startups and scaleups. Investors participating in the study frequently pointed out the stark underrepresentation and lack of visibility of diverse teams in the industry. While there is a notable presence of women in research roles, the entrepreneurial landscape remains predominantly male. This discrepancy raises questions about the barriers preventing the transition from research to entrepreneurship, suggesting a potential gap in academic and educational frameworks that fail to encourage the commercialization of research.

A critical recommendation from the study is the need for an update in education curricula to include focused training on entrepreneurial and investment readiness skills. Such an approach could bridge the gap between excellent research and viable business ventures, particularly for underrepresented groups.

Despite these challenges, there are signs of progress. Elina Halatcheva, Managing Partner at BrightCap Ventures in Bulgaria, highlights the importance of diversity in pitching and team composition: “It is more difficult to pitch a female/women-related theme in front of men and vice versa, that is why diversity is important. We are somehow lucky in Bulgaria because we have many women in (relevant roles involved). There are many women in managing positions, many women female engineers and an increasing number of female entrepreneurs”.

- Labour market participation as researchers.** Over the last decade, the EU has seen positive developments to achieve gender balance in the overall pool of doctoral graduates. Despite this progress, in 2018, women represented around one-third (32.8%) of the total population of researchers at the European level. At both the European and country level, women researchers account for a lower proportion of the economically active population compared to men researchers. However, the average growth rate of women researchers was 3.9% between 2010 and 2018, indicating some positive changes over time. Data also show that segregation persists in research careers across the main economic sectors (higher education, government and business enterprise sectors), with a higher percentage of women researchers being employed in the higher education sector⁵.



Source: [SheFigures Report](#), 2021, Source: Eurostat – Statistics on research and development (online data code: rd_p_persocc) and UIS - Total R&D personnel by function and sector of employment)

⁵ SherFigures Report, 2021

- Private companies - founding team.** The all-male teams (64%) still represent the vast majority of the startups, even though the share of exclusively male founding teams slightly declined from 67% in 2019 to 64% this year. Similarly, the mixed-gender founding teams increased from 25% to 29%, which let us put forward the hypothesis that the mixed-team ⁶ trend is gaining more prominence within the startup ecosystem.

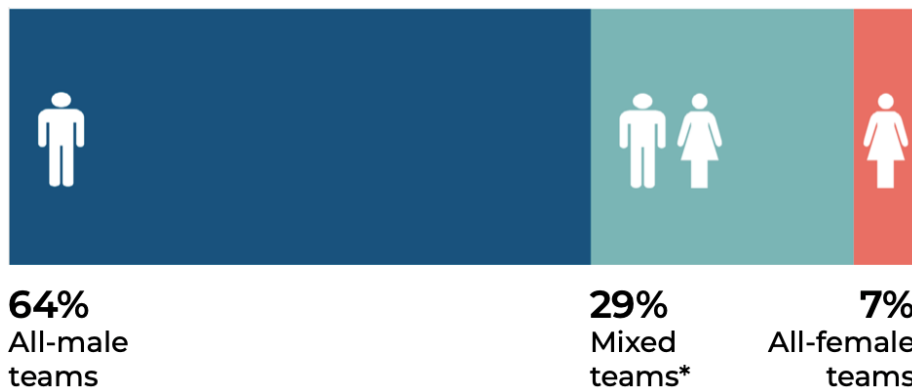


Fig: Gender Balanced founding teams. Source: Startup Europe Monitor, 2021

- Low representation of women:** Several founders and investors opined that, at the European level, there are still far fewer women than men in deep tech. This is related to the low involvement of women in STEM education and the lack of awareness about opportunities in deep tech startups and ecosystems.
- Progress in some ecosystems:** Some interviewees reported progress in promoting gender diversity and inclusion in their respective ecosystems or at least in some regions. For instance, in France, where deep tech is only present in cosmopolitan cities, diversity and inclusion are low but are becoming increasingly important. Similarly, in the Nordics, while gender diversity and inclusion in deep tech is low, initiatives such as female-focused networking events and mentorship programs are contributing to progress.
- Some interviewed investors responded in this regard. Elina Halatcheva from BrightCap ventures: *“We do not differentiate between women and men. We have an equal approach to both sexes/genders, focusing on the most important when we look at a company are three core pillars: team, technology and market. Of course, having a diverse team is important: but not only gender, we also evaluate the founder's background, skills, etc. It is more important for the team to be diverse. But the sex is not as important*

⁶ * A mixed team includes at least one man and one woman

as the diversity of viewpoints and expertise and, these all, are fundamental for better investment process outcomes."

Exploring the Impact of Diversity and Inclusion in the Deep Tech Ecosystem: Founders' Perspectives"

Within the deep tech sector, the journey of female entrepreneurs, especially those embarking on their second or subsequent ventures, has been marked by notable success. Founders' experiences underscore the pivotal role of accumulated experience, knowledge, and skill in fostering self-confidence among women professionals. Women leaders, in particular, have been recognized for their superior organizational abilities, a trait of immense value in ventures, especially within the deep tech domain where extended market entry timelines necessitate resilient leadership.

Evidence supporting the benefits of female-led startups includes the Boston Consulting Group's 2020 report (FOOTNOTE 7), "Why Women-Owned Startups Are a Better Bet", which highlighted that startups founded or co-founded by women generated 10% more cumulative revenue over five years than those founded by men. Similarly, the Credit Suisse Research Institute's Gender 3000 report (FOOTNOTE 8) found that companies with at least one female board member exhibited higher returns on equity and valuations compared to all-male boards.

Despite these positive indicators, challenges persist. Founders from even the most innovative ecosystems have noted a gap in venture capitalists' resources and willingness to support deep tech ventures at the required level. For example, a French deep tech founder shared that reliance on government support was preferable, attributing this choice to the private investors' lack of patience and understanding of the technology.

The discussion also ventured into the potential benefits of instituting gender-specific criteria and goals within the ecosystem. Founders advocate for the importance of promoting gender equality, suggesting that setting explicit targets could significantly bolster women's participation in deep tech startups and enhance industry-wide diversity. This sentiment aligns with research indicating that diverse teams tend to outperform, thus making diversity not just a social or ethical imperative but a strategic advantage as well.

These insights collectively underscore a growing recognition of the value that diversity and inclusion bring to the deep tech ecosystem, highlighting both the progress achieved and the challenges that remain in ensuring equitable opportunities and support for all entrepreneurs, regardless of gender.

Investor Perspectives on Diversity and Inclusion in Deep Tech

From the viewpoint of investors, the approach to funding deep tech ventures reveals a nuanced understanding of what drives success. Fully private venture capital funds prioritize the technological feasibility and market potential of startups, recognizing the inherent value of a diverse team. The consensus is clear: diversity within a team is seen as a significant asset, echoing the positive statistics previously mentioned.

Valeri Petrov, Managing Partner at Eleven Ventures, encapsulates this sentiment, stating, *"We assess the entrepreneurs by merit, their market knowledge, management skills, product creation, and capabilities to develop markets. These are all qualities of a good entrepreneur."*

In contrast, public-private venture capital initiatives, especially in Eastern Europe, have been instrumental in fostering the VC ecosystem through public programs and capital support. While these funds advocate for greater attention to mixed tech teams, they stop short of mandating a specific allocation of capital to such teams.

The discourse among investors also touches upon the relevance of gender in the entrepreneurial process. Some argue that gender should play no role in the establishment and success of a company, including deep tech ventures, emphasizing merit and competence as the sole criteria for evaluation. Conversely, there are concerns that enforcing gender-specific goals could inadvertently foster hostility or resentment towards women, potentially undermining the broader objectives of diversity and inclusion.

At its core, venture capital remains a domain governed by relationships. The most lucrative deals typically emerge from and are finalized within an investor's network, with a preference for collaboration among familiar local or regional peers. This tendency underscores the importance of broadening investor networks to include a more diverse range of perspectives and experiences, thereby enhancing the potential for innovation and success in the deep tech ecosystem.

● 3. VC recommendations for deep tech founders

First Momentum Ventures offered some valuable insights to our project partner, EU.VC, about **investing in deep tech and what facts show some red flags during the evaluation process.**

"Investing in deep tech startups is a complex endeavour, an interplay of risk assessment, visionary thinking, and strategic evaluation. For investors, it's about identifying those rare gems that have the potential to not just succeed but redefine the landscape of technology and industry. To navigate deep tech innovation angels and VCs must possess a blend of analytical rigour and intuitive foresight."

Due to the high volume of potential investments, VCs often employ fast, heuristic methods in evaluating startups. Deep tech startups, often emerging from the realms of intense scientific research and cutting-edge technology, offer a unique challenge. They frequently operate in fields with long development timelines and high capital requirements. This necessitates an investment approach that's not just about funding but also about understanding the complex nature of the technologies involved.

The primary lens through which these startups are evaluated is their potential to revolutionize industries or create entirely new markets. The assessment isn't confined to the present capabilities but extends to envisaging the future impact. This forward-looking approach is crucial in deep tech investments due to the nascent stage of many technologies and markets involved.

The concept of founder-market fit is particularly crucial in deep tech. Investors seek founders who not only possess deep technical expertise but also a profound understanding of the market. The synergy between technological prowess and market insight can significantly enhance a startup's prospects.

Emphasis is placed on the diversity and complementarity of the founding team's skill sets. A team that collectively covers the spectrum of necessary skills – from technical expertise to business development and market understanding – is often seen as better equipped to navigate the challenges of growing a deep tech venture.

Successful deep tech startups often exhibit a balance between technological innovation and commercial acumen. The founding team should ideally encompass both technical and business expertise, ensuring a well-rounded approach to both product development and market penetration.

Finally, investors look for a clear, long-term vision and scalability in deep tech startups. The path to market for deep tech products can be long and winding, requiring a vision that encompasses not just immediate milestones but also long-term scalability and impact.” (David Cruz e Silva, EU.VC)

Red Flag 1: The deep tech venture cap table

Deep-tech startups, often originating from university or research spin-offs, present unique challenges in cap table management due to their inherent focus on groundbreaking technology and the often complex nature of their founding teams. Central to these challenges is striking a balance between founder equity and contributions from academic circles.

Founder Equity and University Contributions

A common feature in the cap tables of deep-tech startups is the presence of equity allocated to professors, as well as academic founders, universities, or research institutes. This arrangement, while necessary, can be a double-edged sword. From an investor's perspective, maintaining an equitable and balanced cap table is imperative. The red flag arises when non-operational founders or academic entities hold excessive equity. Such imbalances often hint at potential conflicts of interest and misaligned incentives, which can be detrimental to the startup's growth trajectory.


It is essential for founders to engage in open dialogues with academic partners and investors, underscoring the long-term benefits of holding a smaller stake in a potentially thriving venture. Convincing professors and research institutions to accept lesser equity in exchange for the promise of future prosperity requires tactful negotiation. It's a delicate dance, aligning the aspirations of academic brilliance with the practicalities of the business world. Drawing inspiration from models like Stanford University, which has set successful precedents in equity distribution, can guide these discussions.

Cap Table Reorganisation

Investors play a critical role in guiding deep-tech startups through the complex process of cap table restructuring when necessary. This often involves advising on buybacks of equity from non-core founders or renegotiating terms with universities or early-stage incubators. Specifically, it's important to manage university equity share, which investors typically prefer to see capped between 10-15%. The goal is to create a cap table that is attractive to future investors and sustainable for long-term growth. This support becomes crucial, especially when startups face intricate decisions about equity dilution and founder vesting in subsequent funding rounds.

A critical aspect often discussed in these processes is the potential dilution of founders' stakes. A skewed cap table can lead to disproportionate founder dilution, significantly reducing their long-term incentive to stay committed to the startup. This situation poses a serious concern, as founders, facing dwindling equity, might contemplate abandoning their entrepreneurial path for more lucrative roles in established corporations. Therefore, ensuring that founders retain a meaningful equity stake — while balancing the interests of academic partners and other early stakeholders — is pivotal in keeping them emotionally and financially invested in their venture's success.

Equity ownership per founder



	Two co-founders and university receiving no equity but royalties	Two co-founders and university holding 5% equity	Two co-founders and university or professors holding 30% equity	Dilution
Start	50%	47.5%	35%	
Pre-seed	35%	33.3%	24.5%	20% + 10% VSOP/ESOP
Seed	28%	26.6%	19.6%	20%
Series A	22.4%	21.3%	15.7%	20%
Series B	17.9%	17%	12.5%	20%
Series C	15.2%	14.5%	10.7%	15%
Series D	13.7%	13%	9.6%	10%

Source: First Momentum Venture, Jan 2024

Red Flag 2: De-risking the business

De-risking deep tech startups requires a multifaceted approach. It involves understanding the unique landscape of deep tech, emphasising value demonstration to customers, employing scientific methods in business development and embracing risk.

Deep Tech Dynamics

Deep tech startups typically experience a prolonged phase before generating revenue, primarily due to the complexity and innovation of the technology involved. This extended development period demands that investors adapt their strategies to accommodate longer gestation periods, focusing more on technological milestones and less on immediate revenue streams.

Customer Value

Demonstrating value to customers early on is crucial for de-risking deep tech ventures. While immediate revenue may not be feasible, indicators of customer interest, such as engagement and commitment to future collaborations, are vital. A team member with a commercial mindset can play a pivotal role in aligning the startup with market needs and customer expectations.

Scientific Methodology in Business

Deep tech founders, often rooted in scientific backgrounds, are well-equipped to apply a scientific approach to their business strategies. This method involves hypothesising about market fit, experimenting with various applications, and iteratively solving problems based on feedback. This structured approach can significantly improve the startup's chances of success, offering a clear pathway through the complex landscape of deep tech innovation.

Embrace risk

Investors should actively encourage a culture that not only embraces rapid iteration and experimentation but also sees value in learning from failures. This paradigm shift is essential for startups coming from a more conservative, research-oriented background. It is about cultivating a mindset where swift action, adaptability, and resilience are at the core of the company's culture.

Cap Table Management (again)

Returning to the concept of cap table management, it's vital to recognize its role in the broader de-risking strategy. A balanced cap table prevents founder dilution and maintains long-term incentives for continued innovation and company growth. Proper cap table management is not just about equity distribution but also about ensuring the sustained motivation and engagement of key stakeholders in the company.

Red Flag 3: Grant Hypnosis

This term refers to a state where startups, having secured early public funding, continue on a business-as-usual path, not fully embracing the radical shift in pace and mindset required for startup success. Grant hypnosis often manifests in a lack of urgent progress in deep tech startups. While initial public funding provides essential support, it can inadvertently create a comfort zone that dampens the entrepreneurial spirit. The expectation in the startup world, however, is a departure

from business-as-usual. Once a company is formed, it should operate under a new set of dynamics where product and company development occur at an accelerated pace. This shift is crucial for startups to stay competitive and innovative.

Expectations

It is crucial for investors to communicate the sense of urgency and rapid pace that is quintessential in the startup ecosystem. This can sometimes be a cultural shift for founders who are transitioning from a methodical, research-centric environment to a fast-paced, business-driven world. Investors should work closely with these founders, aiding them in reshaping their outlook and approach to align with the entrepreneurial landscape's demands.

Milestone-based funding

A strategic method to ensure consistent progress and focus in startups is through milestone-based funding. This model is designed to link the infusion of capital directly to the achievement of specific, pre-agreed milestones. Such a structure ensures that startups are continuously working towards clear objectives, moving beyond the safety net of grant funding. This method not only encourages startups to make tangible progress in product development but also instils a discipline of goal orientation and achievement within the team.

Commercial partnerships

Another pivotal role that investors can play is in fostering connections between the startup and established industry players. These connections are not merely for networking; they are avenues for startups to gain vital market insights and validation. By forming these partnerships, startups can quickly adapt and evolve their products or services to meet real market needs and demands. This real-world feedback loop is invaluable in steering the startup towards market relevance and commercial viability, thus de-risking the business for future investors.

Networking

Introducing startup founders, especially those from scientific backgrounds, to entrepreneurial networks can really impact their journey. These networks are rich ecosystems comprising mentors, industry experts, potential customers, and peers who have navigated similar paths. For scientific founders, this shift from the academia's landscape, often characterised by high egos and a culture of

perfectionism, to the startup world is pivotal. In the early stages of a startup, the 80-20 rule prevails, where rapid progress and practical solutions take precedence over striving for perfection. The primary goal shifts from personal acclaim to advancing the product and company swiftly. Being part of such a network opens numerous doors for learning, collaboration, and customer acquisition. It exposes founders to diverse perspectives and experiences, crucial in guiding their strategic decisions and growth trajectories, and facilitates the transition from academic rigour to the dynamic pace of the startup ecosystem.

Progress Reviews

Maintaining a regime of regular progress reviews and accountability checks is crucial. These reviews are comprehensive evaluations that go beyond assessing technological advancements. They delve into various aspects of the business, including the validation of the business model, customer acquisition strategies, market positioning, and scaling plans. By conducting these regular check-ins, investors can keep the startups aligned with their objectives, ensuring a consistent focus on growth and development.

- **Key takeaways**

The rise of Deep Tech signifies a new era in technological advancements and scientific breakthroughs. Fuelled by the forefront of scientific research and ambitious entrepreneurs, this phenomenon has garnered the attention of both European and global venture capital investors who recognize the significant potential of deep tech startups. Despite market fluctuations, Deep Tech has proven its resilience, as highlighted in Dealroom's report. In 2022, European Deep Tech startups successfully secured an impressive \$17.7 billion in funding. Although this represents a 22% decrease from the previous year, which despite being a decline is the consequence of the end of the ZIRP era, which makes it more fitting to benchmark against 2022 where there's been a noteworthy 60% increase compared to 2020. Notably, during the third and fourth quarters of 2022, Deep Tech emerged as the second-best performing sector in Europe, second only to the Energy industry.

Deep Tech Ventures' Needs and Challenges in Europe:

Trust

A primary concern raised by Deep Tech founders in emerging and moderately developed countries is the lack of trust in the potential of their technology, the anticipated success of their products, and the viability of their businesses. This scepticism is most pronounced among investors but extends to other stakeholders, including the broader community. This issue is less prevalent among founders in leading and stronger countries, attributed to a culture that is more conducive to innovation and the availability of more resources for founders, such as higher quality education, more robust research, development, and innovation (RDI) activities and entities, increased spin-offs, and more success stories of Deep Tech products being embraced by the market.

Recommendation for Improvement

To address this challenge, it is recommended to initiate more activities, such as events and roundtables, involving key stakeholders, particularly venture capitalists (VCs) and intermediary agencies. The aim would be to highlight the non-financial achievements and the market traction of the most promising Deep Tech ventures in less innovative countries. These ventures often feature strong teams, founders with reputable international education, accolades such as "Seals of Excellence," or notable recognition at global events like CES (US), WebSummit (Portugal), or in Asia. Highlighting these milestones can demonstrate the technological potential

of these ventures and should be more thoroughly considered by European investors.

Cap Table Management

For investors, it's crucial to mentor founders, particularly those with research backgrounds, on proficient cap table management. This entails ensuring a balance in equity distribution that maintains founder motivation while also accommodating the needs of investors and partners. Effective cap table management is essential for aligning the interests of all stakeholders and ensuring the long-term viability of the company.

De-risking Strategies

Investors are advised to promote the creation of Minimum Viable Products (MVPs) and the early validation of market fit. It's important to align the technology with market demands to minimize risks and enhance the attractiveness of the venture to future investors. This approach not only validates the business model but also helps in refining the product to meet market needs effectively.

Grant Hypnosis

To counteract the potential lethargy that grants funding might induce, investors need to instil a business mindset and sense of urgency in Deep Tech founders. This strategy involves establishing ambitious milestones, linking funding to the achievement of these milestones, and encouraging a culture of quick iteration and responsiveness to market feedback. Facilitating commercial partnerships and integrating startups into entrepreneurial networks are vital steps in shifting the focus from research-oriented to business-centric operations, thereby accelerating the startup's growth and market penetration.

VC Investment

The creation of the European Institute of Innovation and Technology (EIT) and the EIT Accelerator has been a commendable effort to enhance VC awareness and engagement with Deep Tech in Europe. Furthermore, public programs exist across European countries to foster research activities and the development of products at their nascent stages (Technology Readiness Levels, TRL 1 to 6). Nonetheless, the interest from Venture Capital funds in Deep Tech remains markedly low.

To improve the current situation, we recommend greater involvement from intermediary agencies in supporting and promoting Deep Tech ventures, alongside fostering better connections with active venture capital funds in Europe through shared events. This strategy aims to bridge the gap between the private and public sectors, as both share the common goals of identifying and nurturing top technologies and transforming them into marketable, successful products.

Investment Readiness Support

Many Deep Tech founders express a need for additional support throughout the investment process, including researching, preparing the investment data room, and the learning process itself. These tasks are time-intensive and often fall outside the primary skill set of a Deep Tech founder.

Enhancing collaboration between intermediary agencies, local accelerators, and incubators could significantly aid in this area. Additionally, creating a platform that offers comprehensive resources and outlines the key steps in preparing an investment strategy would provide invaluable support for founders navigating this complex process.

S&E Talent

Eastern European countries are renowned for their vast reservoir of highly skilled science and engineering (S&E) professionals, who remain more affordable or have a lesser impact on the human resources budget compared to their counterparts in Western countries. The high salaries demanded by STEM professionals in countries with a strong and innovative ecosystem pose a significant barrier for Deep Tech founders.

There should be a concerted effort on both sides to enhance business development skills, an area highly valued by venture capitalists. Great technology requires well-educated individuals to transform it into a marketable product. Therefore, Deep Tech founders are encouraged to engage with accelerators and incubators, applying and adhering to their business development programs to bridge the gap between technological innovation and market success.

- **Annexe 1: Deep Tech profile for the scope of the project**

- High-growth* companies
- >500k € in revenue, preferred 1-3mn €
- Raised at least **EUR 1 million, if fundraising** - the investment must be >1M€ (pre-Series A, actively raising a Series A, and onwards)
- match our verticals (see below)
- HQ in **Europe**

* The concept of a “high-growth firm” is widely known and has been defined by Eurostat and the OECD **as enterprises with at least ten employees and average annual growth in employment or revenue exceeding 20% over three consecutive years** (Eurostat and OECD, 2007[3]).

The European Commission subsequently introduced a new definition that sets a lower threshold – **enterprises with 10% annualised growth in employment over three consecutive years, starting from at least 10 employees at the beginning of their growth** (European Commission, 2014[4]). However, due to the very low response of the deep tech founders to our Interview request, we have decided to drop considering this indicator in the selection process.

The Scaleups invited and analysed in the project cover the following industries, inspired by the European Deep Tech report (Dealroom, 2023) and the European Institute of Technology (EIT). The deep tech categories (fields) listed below will be our focus and will not exclude others if we identify an eligible Scaleup serving it.

● **Annexe 2: Venture Capital fund profile for the scope of the project**

According to the European Innovation Scoreboard, the EU member states are classified into 4 main categories on their “innovation performance” impact.

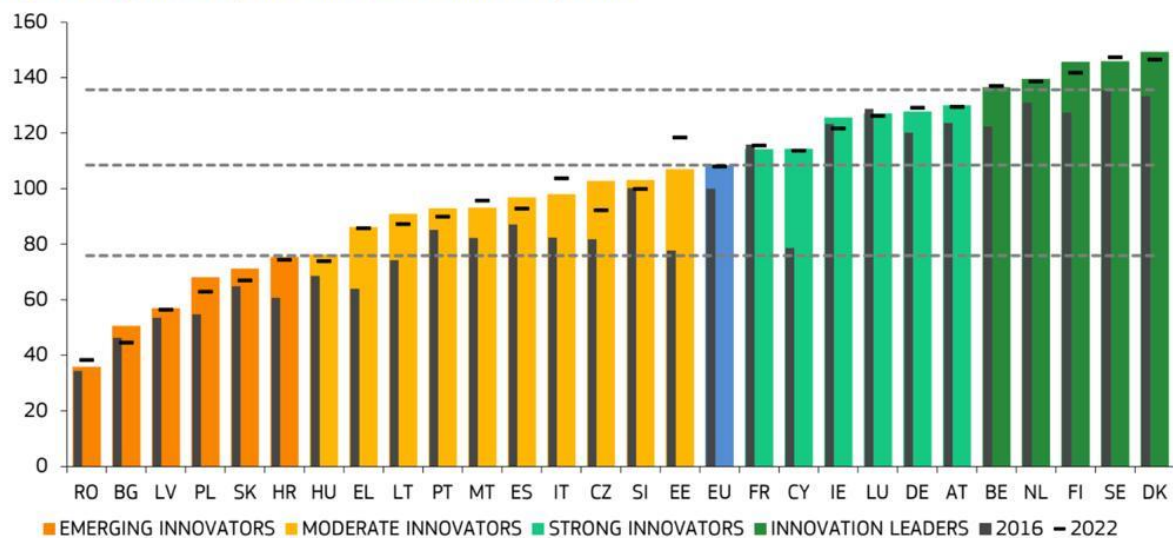
The countries involved in the CO-INVESTIN project: **Greece** (moderate), **Bulgaria** (emerging), **Romania** (emerging), **Portugal** (moderate), **France** (strong) and **Denmark**(leader) cover all these 4 areas. So, we will select for the deck research of the VC challenges in string versus modest ecosystem, venture capital funds from all the countries of the consortium.

VC selection criteria:

For the scope of this project, the consortium will seek to select and interview venture capital funds that fall into the following categories:

- Deep technology focus (in correlation with the company project Target Group - Scaleups, see Target Group Profile - Scaleup)
- Average tickets size of 500k - 1k euro
- Rounds Seed, Seed II, early Series A or Series A
- B2B SaaS focus

Figure 1: Performance of EU Member States' innovation systems



Source: The European Innovation Scoreboard, 2023

● Annexe 3: Interview Guide for Scaleup

Phase 1 The GLF Questionnaire

Phase 2 INTERVIEW GUIDE INVESTORS

For the qualitative data collection has been chosen the semi-structured interview, based on an interview guide

Summary intern (project team). Pls be sure the interviewer covers all these key topics:

Investor search: *Ask startups about:*

- whether they searched for investors in Moderate or Emerging Innovator countries, Leader or Strong Innovator countries
 - If so, what the results were.

Support needs: *Ask startups about:*

- what type of support they would suggest or need to access funding easier
- what role do you think intermediary organisations can play

Challenges for cross-regional collaboration: *Ask startups about:*

- the challenges they see for Emerging and Moderate ecosystems to attract investments
- the main challenges/barriers for investors in Leader or Strong Innovator countries to cooperate (to co-invest) with investors in Moderate or Emerging Innovator countries, and vice versa.
- their interest in starting investment negotiations with investors from countries that do not belong to their ecosystem, and why

INTERVIEW SETTINGS

Pre—interview activities:

- *Prepare the interview /adapt the questions based on the questionnaire completed by the Accelerator during Phase 1 (quantitative research) – include the answers in the guide*
- *Test the programs/tools used for audio recording*

Interview activities:

- Length: estimation 30-35 minutes
- Format: online video conference - Google Meet
- Recording: use the audio recording for the entire interview
- Required: the questionnaire (recommendation – printed) with the answers provided by the Accelerator during Phase 1

Post—interview activities:

- Transcribe the answers & check for accuracy: in the interview guide document, in the space for each question

INTERVIEW QUESTIONS

Announce the interviewee that the interview needs to be recorded for internal research purposes and turn ON Recording

Investor search

- What were the specific challenges you faced in searching for investors in Moderate or Emerging Innovator countries?
- What were the specific challenges you faced in searching for investors in Innovation Leader or Strong Innovator countries?
- What advice would you give to other startups on how to search for investors in different European regions?

Support needs

- What specific types of support would you need to access funding more easily?
- What role do you think intermediary organizations can play in helping startups connect with investors from different European regions?
- Is the policy framework at the local level enabling/supporting cross-regional collaboration between startups and investors? What is the most influential innovation agency locally or regionally in this regard? (Agency name, contact person, if possible)

Challenges for cross-regional collaboration



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- What do you think are the biggest challenges for Emerging and Moderate ecosystems to attract investments from Leader and Strong Innovator countries?
- What do you think are the main challenges/barriers for investors in Leader or Strong Innovator countries to cooperate (to co-invest) with investors in Moderate or Emerging Innovator countries?
- What do you think are the main challenges/barriers for investors in Moderate or Emerging Innovator countries to cooperate (to co-invest) with investors in Leader or Strong Innovator countries?

Other suggestions/recommendations

- What other suggestions or recommendations do you have for improving cross-regional collaboration between startups and investors in Europe?

● **Annexe 4: Interview Guide for Investors**

Phase 1 The GLF Questionnaire INVESTORS -

Phase 2 INTERVIEW GUIDE INVESTORS

For the qualitative data collection has been chosen the semi-structured interview, based on an interview guide

Summary intern (project team). Pls be sure the interviewer covers all these key topics:

- **Collaboration strategies: Ask investors about:**
 - their approach to collaborating with investors and scale-ups from different European regions
 - their experience with co-investments and syndication
 - whether they actively seek out local partners or experts
- **Support for women-led start-ups:**
 - their approach to investing in women-led start-ups
 - whether they have noticed any regional variations in this context.
- **Future needs and recommendations:**
 - what they believe is needed to improve cross-regional collaboration in the European venture capital sector, specific support mechanisms, policies, or initiatives that they would recommend for enhancing cross-border investments and partnerships,
 - how the CO-INVESTIN project can assist in addressing the challenges and gaps they have identified.

INTERVIEW SETTINGS

Pre—interview activities:

- *Prepare the interview /adapt the questions based on the questionnaire completed by the Accelerator during Phase 1 (quantitative research) – include the answers in the guide*
- *Test the programs/tools used for audio recording*

Interview activities:

- *Length: estimation 30-35 minutes*
- *Format: online video conference - **Google Meet***
- **Recording:** *use the audio recording for the entire interview*
- *Required: the questionnaire (recommendation – printed) with the answers provided by the Accelerator during Phase 1*

Post—interview activities:

- Transcribe the answers & check for accuracy: in the interview guide document, in the space for each question

INTERVIEW QUESTIONS

Announce the interviewee that the interview needs to be recorded for internal research purposes and turn ON Recording

Collaboration Strategies

1. How do you typically identify and evaluate potential collaboration opportunities with investors or scaleups from different European regions?
2. What factors do you consider when deciding whether to collaborate with investors or scaleups from different European regions?
3. Can you share an example of a successful cross-regional collaboration you have been involved in and what made it successful?
4. What are the main challenges you have faced in collaborating with investors or scaleups from different EU regions?
5. What are the main factors in the policy framework concerning cross-regional collaboration in the European venture capital sector and what is the most influential innovation agency locally or regionally in this regard? (Agency name, contact person, ideally)

Support for Women-led Start-ups

1. Does your firm have specific initiatives or programs to support women-led start-ups? If so, can you elaborate on these initiatives?
2. What are the key factors you consider when evaluating investment opportunities in women-led start-ups?
3. Have you noticed any regional differences in the challenges faced by women-led start-ups or in the support available for them?

Future Needs and Recommendations

1. What are the most significant barriers to cross-regional collaboration in the European venture capital sector?
2. What role can technology and digital platforms play in facilitating cross-regional collaboration and deal sourcing?
3. What specific measures or initiatives would you recommend to policymakers or industry bodies to promote cross-border investments and partnerships?
4. How can the CO-INVESTIN project contribute to building a more cohesive and interconnected European venture capital ecosystem?

Additional Questions (optional, but useful for our research)

1. How do you assess the potential impact of cross-regional collaboration on the overall performance and innovation capacity of the European venture capital sector?
2. What advice would you give to aspiring venture capitalists who are seeking to expand their network and engage in cross-regional collaboration?
3. What are your expectations for the future of cross-regional collaboration in the European venture capital landscape?
4. What other suggestions or recommendations do you have for improving cross-regional collaboration between startups and investors in Europe?

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