Women Founders in European Deep Tech Startups

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**Women Founders
in European Deep Tech
(WIDT) European Startups**

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European Investment Fund — European Investment Bank — European Investment Advisory Hub (Europe's gateway to investment support) — eit Community — Funded by the European Union

Women Founders in European Deep Tech Startups Report   - EIF Foreword

The EIF is committed to encouraging female leadership in the Venture Capital industry. This study confirms that women continue to be underrepresented in deep-tech start-ups and reveals that deep-tech start-ups led by women remain underfunded. The findings of the study are yet another reminder that we still have a great deal more to do.

At the EIF, we have been working to bring about change by introducing gender criteria in our flagship InvestEU programme together with the European Commission. This leadership-focused model encourages women to be integral to the decision-making process in investment roles, paving the way for future women leaders in finance and beyond.

By actively targeting VC funds which espouse gender diversity in their leadership, we want to write a new chapter in Venture Capital. We aim to foster gender diversity across a wide variety of VC sectors, including deep-tech, an area critical in our collective efforts to nurture the innovation ecosystem. A gender positive approach to the deep-tech industry in Europe will in and of itself be a marker of innovation. A more gender-diverse approach to the VC industry can help set Europe apart and put it on a path to become a leader in this field.

Our commitment to promote gender equality in the world of finance and in particular Venture Capital and Private Equity will remain high, and research papers such as this one are key for us to analyse and design future actions that aim to reduce the gender disparity.

We thank EIT-Food for their work on this study that constitutes yet another example of the excellent collaboration we have had with the EIT Knowledge and Innovation Centres in recent years. We look forward to other opportunities to work with EIT, which we have come to view as a like-minded partner for EIF.

Marjut Falkstedt
Chief Executive at EIF

Women Founders in European Deep Tech Startups Report   - EIB Foreword

Only 14% of deep-tech startup founders in Europe are women and they get access to 11.4% of total funding available. However, grants and support programmes represent almost one-third of this funding. Other fund suppliers, such as business angels and VCs are less likely to fund a startup with a woman in the founding team. These findings, which the Women Founders in European Deep Tech Startups Study presents, are insightful in illustrating the current gender finance gap in investments in European deep-tech and the challenges that women founders face to access the adequate sources of funding to grow their businesses. The European Investment Bank Group, through its Strategy on Gender Equality and Women's Economic Empowerment, recognises this gap and joins efforts with its partners to mobilise further investments in women-led and women-owned companies, to boost innovation and unlock the full potential of the European Union's economy.

A pivotal actor in this endeavour, the EIB, through its Advisory services works to raise awareness on this investment gap and the missed opportunity that it represents for the EU. Through its recently launched Gender Finance Lab, funded by the European Commission's InvestEU Advisory Hub, the EIB delivers market research and brings together financial sector stakeholders to promote gender-smart finance practices. Ultimately, EIB Advisory services' mission is to support financial intermediaries to capitalise on the business opportunity of investing in women-owned and women-led businesses across the EU, which represents not only an opportunity for economic returns, but also for higher social and green returns.

Gemma Feliciani
Director of the Financial
Institutions Department,
European Investment Bank

Women Founders in European Deep Tech Startups Report   - EIT Director Foreword

The report Women Founders in European Deep Tech Startups contains an important call to intensify efforts across Europe, to bridge the gender gap in deep tech. Less than 25% of deep tech startups have a woman in the founding team, and the percentage of total funding going to deep tech startups with women founders stands at 11.4% only. Gender bias in investment make it crucial to support women-led start-ups at the early-stage. Those first investors are invaluable for founders, particularly for entrepreneurs developing solutions for major global challenges, where societal impact is as essential as commercial success. And that's where the EIT comes in.

Our programmes, such as the EIT SUPERNOVAS, bring women talent both to European start-ups, and to European investment, through Women Investment Network. The pivotal support we are providing to women-led ventures includes funding, access to markets, clients, thematic expertise, and partnerships. Let me give you some concrete examples: Dr Laura Soucek, whose company Peptomyc is revolutionizing cancer treatment around the world. Krisztina Kovacs-Schreiner (CEO) and Dr Florence Gschwend (Co-founder) of Lixea, who developed a groundbreaking technology, which turns global agricultural and wood waste into profitable materials and fuels, contributing to a more sustainable and circular economy. There are thousands more women-led ventures powered by the EIT.

And there are hundreds of thousands of women we are training to be ready to take the step to become entrepreneurs. For example, the EIT Deep Tech Talent Initiative (DTTI) is one of our programmes addressing the tech skills shortage by creating an educational platform dedicated to deep tech skills development. Its goal is to train 1 million European talents in deep tech fields by 2025 – we have set a target of a minimum 30% women participants. To give one more example: the EIT Girls Go Circular project has trained +40,000 schoolgirls across Europe with digital and entrepreneurial skills, through an online learning programme on circular economy. And you can be sure that the EIT will remain committed in the coming years, to support women entrepreneurs in tech.

Delivering ground-breaking solutions to pressing global challenges is possible only with women talent, not only on board, but also on the steering wheel. Join us in making gender-smart innovation happen!

Martin Kern
EIT Director

This study is brought to you by Supernovas, an initiative of the European Institute of Innovation and Technology (EIT) and its Knowledge and Innovation Communities aiming to bring more women into the world of entrepreneurship and investment. Supernovas empowers women-led start-ups and future role models for women in business while at the same time fuelling talent to the next generation of women VCs and angel investors . The EIT is an EU body and an integral part of Horizon Europe, the EU Framework Programme for Research and Innovation.

eit.europa.eu/community-activities/women-entrepreneurship-supernovas
supernovas.eitcommunity.eu/

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Introduction

The study at hand addresses a critical issue within Europe's Deep Tech startup ecosystem—specifically, the underrepresentation of women in this sector, the characterization of women led deeptech and how to redress gaps and shortcomings. Despite Europe being home to some of the world's leading scientists and research institutions, the region has yet to fully capitalize on this potential, especially when it comes to translating research into market-leading technology companies. Startups play a pivotal role in transferring research from universities and R&D labs to the market, driving innovation and economic growth. However, the persistent underrepresentation of women in founding teams—far below their 50% share of the population—indicates that Europe is not fully utilizing its available talent.

This study aims to shed light on the participation of women in founding teams and to analyze the impact of their involvement on key aspects of startup success. It explores how the presence of women in leadership affects the performance of these startups, as well as the implications for their funding paths. Additionally, the research examines the types of funding received by women-led startups, the profiles of investors supporting these ventures, and how these factors influence the valuation of the startups.

By providing insights into the structural shortcomings of the ecosystem and offering a thorough analysis of the barriers women face, the study aims to foster a more inclusive and equitable startup landscape across Europe. The authors hope that by addressing these disparities, the Deep Tech sector can better harness the full potential of Europe's diverse talent, driving innovation, growth, and competitiveness on a global scale.

Metodology | This research study relied on two data sources.

For the quantitative study:

- We used Dealroom database on startups across Europe. We queried the database for companies founded since 2010 using the terms: Europe, DeepTech, Artificial intelligence, Mobile app, Hardware, Machine learning, Big data, Blockchain, internet of things, 3d technology, computer vision, virtual reality, recognition technology, connected device, Augmented reality, Quantum technologies, Natural language processing, Deep learning, Autonomous and sensor technology, Nanotech.
- The query led to 12,535 observations. We removed 58 duplicated companies. Next, we used the invaluable research assistance of several students to complete the missing data from the original population as well as double-check the information available. In total, more than 6,000 records were updated and corrected.
- For 5,370 companies the names of the founders or their gender could not be found, which reduced the number of companies in the study to 7,165.
- 2023 data is sparse and not used in the report.
- We analysed the final database using both basic descriptive statistics as well as advanced regression models to identify patterns in the database regarding the participation of women founders in Deep Tech.

For the qualitative study:

We used a qualitative approach to address questions that could not be answered using quantitative information. We interviewed 20 women founders to better understand the process through which they became involved in the startup, their experiences through the journey, and their perspectives on women entrepreneurs in Deep Tech.

The interview included the following topics:

| Background of the woman founder
| Source of the idea, meeting co-founders
| The evolution of the startup
| Initial roles and evolution
| Role of established organizations
| Funding
| Challenges and successes
| Women in Deep Tech
| Recommendations

Composition of founding teams

Women are underrepresented in Deep Tech startups. Startups in this space with at least one woman in the founding team remains below 25%. Yet this percentage has been **increasing from 11.3 in 2011 to 24% in 2022**.

The percentage of women over total number of founders of Deep Tech startups **has doubled from approximately 7% in 2010 to 14% in 2022**.

Women are **less likely to start a Deep Tech startup on their own**. Only 10.4% solo startups are women compared to 17.4% of all startups having at least a woman in the founding team. Yet, the percentage of solo woman startups has been steadily increasing.

The **percentage of women in founding teams** of Deep Tech startups with at least one woman in the team (including solos) is **61.4%**.

The **percentage of women in founding teams** of Deep Tech startups with at least one woman in the team (excluding solos) has remained at about **46.8%** through the period. For teams equal or larger than t**hree founders** the percentage drops to **35.9%**.

Women Deep Tech startups* are significantly larger (excluding solos).

Women Deep Tech startups are significantly younger (excluding solos).

There is **no difference in employee, revenue, profit, and EBITDA growth** between women Deep Tech startups and men-only Deep Tech startups.

However, **larger founding teams** of Deep Tech startups **are associated with higher employee growth**.

> *   *Women Deep Tech startups in the report are Deep Tech startups with at least one woman in the founding team.*

Funding

The **percentage of total funding going to women founded Deep Tech startups of startups stands at 11.4%**, below the percentage of women startups being round 17.4%.

Yet, this percentage reaches 30% for women founded startups in **Central Europe and the Anglo-Saxon region**, and only 3.6% in Eastern Europe.

Women Deep Tech startups receive approximately 14% of all the rounds across the range of types of rounds (pre-seed to mega-rounds), which is lower than the 17.4% of women startups over total startups.

Founding teams of Deep Tech startups with a **women majority receive less average total funding**.

Women Deep Tech startups receive their first funding faster.

About 1**5% of Deep Tech startups that receive funding are women founded startups**, somewhat lower than the 17.5% of women founded startups.

Women Deep Tech startups receive less total funding and less funding per round.

Women Deep Tech startups receive smaller first rounds.

Women Deep Tech startups are more likely to receive a first round from public sources.

Investors

Women Deep Tech startups are more likely to have **government, incubators and non-profit organizations** as investors.

The percentage of women Deep Tech startups receiving **early and late VC is lower than those receiving grants and seed rounds**.

There is no difference in the amount of funding that women Deep Tech and men-only startups receive, when they receive funding.

Women Deep Tech startups are **more likely to receive grants** but l**ess likely to receive early and late venture capital funding**.

Valuation

First valuation of women Deep Tech startups **is lower** than men-only.

Women Deep Tech startups **receive lower valuations** throughout their lives and are l**ess likely to reach a €20 million valuation**.

However, the **increase in valuation is no different** for women Deep Tech startups.

Testimonials from Women Entrepreneurs

The following slides summarize the testimonials from 20 women Deep Tech startup founders.

They are to be read as the experiences and opinions of these women, and not as scientific evidence.

These testimonials provide interesting perspectives as to how women Deep Tech startup founders perceive the ecosystem in which they work.

These testimonials provide interesting perspectives as to how women Deep Tech startup founders perceive the ecosystem in which they work.

Experiences:

Path to Deep Tech startups

The **path to be women founders** of Deep Tech startups **is diverse**, from **being pushed** into it through a research project that becomes a startup to **consciously pursuing** an opportunity.

Founding teams are **not structured with gender diversity** in mind, but rather affinity and complementary skills

A common thread is that **women founders are highly educated**. While not having a tech background, they all **enjoy tech**.

They are driven by **passion** and **changing the world**; money is not a motivator but a potential outcome of their passion.

Interacting with the market

Women Deep Tech founders are **resourceful** in adapting to **pivots** of the startup.

Grants are important sources of funding in early stages of the startup.

Women Deep Tech founders feel being **side-tracked when reaching private financing sources**.

Competition for talent from top tech firms is an important constraint in certain markets.

External organizations play a crucial role as originators of the opportunity, incubators, technology and commercial partners, and clients.

Women entrepreneurs' opinions:
Why are women underrepresented

Women are "wired" differently

- Women are **attracted** towards biology, medicine and chemistry rather than deep tech.
- Women are more **perfectionist** and **risk averse**, they feel less comfortable in "faking it and then making it."

Social conventions

- People tend to follow **stereotypes** and women are expected to take a major role in **running the household**.
- Certain countries have **weaker support systems** for work-family balance.
- Women are **steered away from STEM** topics even if academically girls are very good at them.

Society biases

- Women are **exposed to different problems** that are not necessarily solved through deep tech, but rather using other business models.
- Capital suppliers are (**un)consciously biased against women founders** in deep tech startups.
- The tech and private investment sectors have a **majority of white men** running the organizations.

Role models

- Lack of role models that will inspire women to move into Deep Tech startups.

Structure of the supply market

- It is **easier to hire men in tech roles** because there are more and easier to access through networks; this t**ranslates to startup founding teams**.

Bulgaria 0.10%, Latvia 0.10%, Austria 0.10%, Belgium 0.13%, Hungary 0.13%, Czech Republic 0.14%, Netherlands 0.14%, Germany 0.15%, Lithuania 0.16%, France 0.16%, Denmark 0.17%, Portugal 0.18%, Greece 0.18%, Sweden 0.19%, Ireland 0.20%, Luxembourg 0.20%, Italy 0.20%, Poland 0.21%, Finland 0.22%, Slovakia 0.23%, Spain 0.24%, Romania 0.24%, Estonia 0.25%, Slovenia 0.29% Croatia 0.20%

Percentage of women startups per EU country

- 0.10% - 0.15%
- 0.16% - 0.20%
- 0.21% - 0.25%
- 0.26% - 0.30%
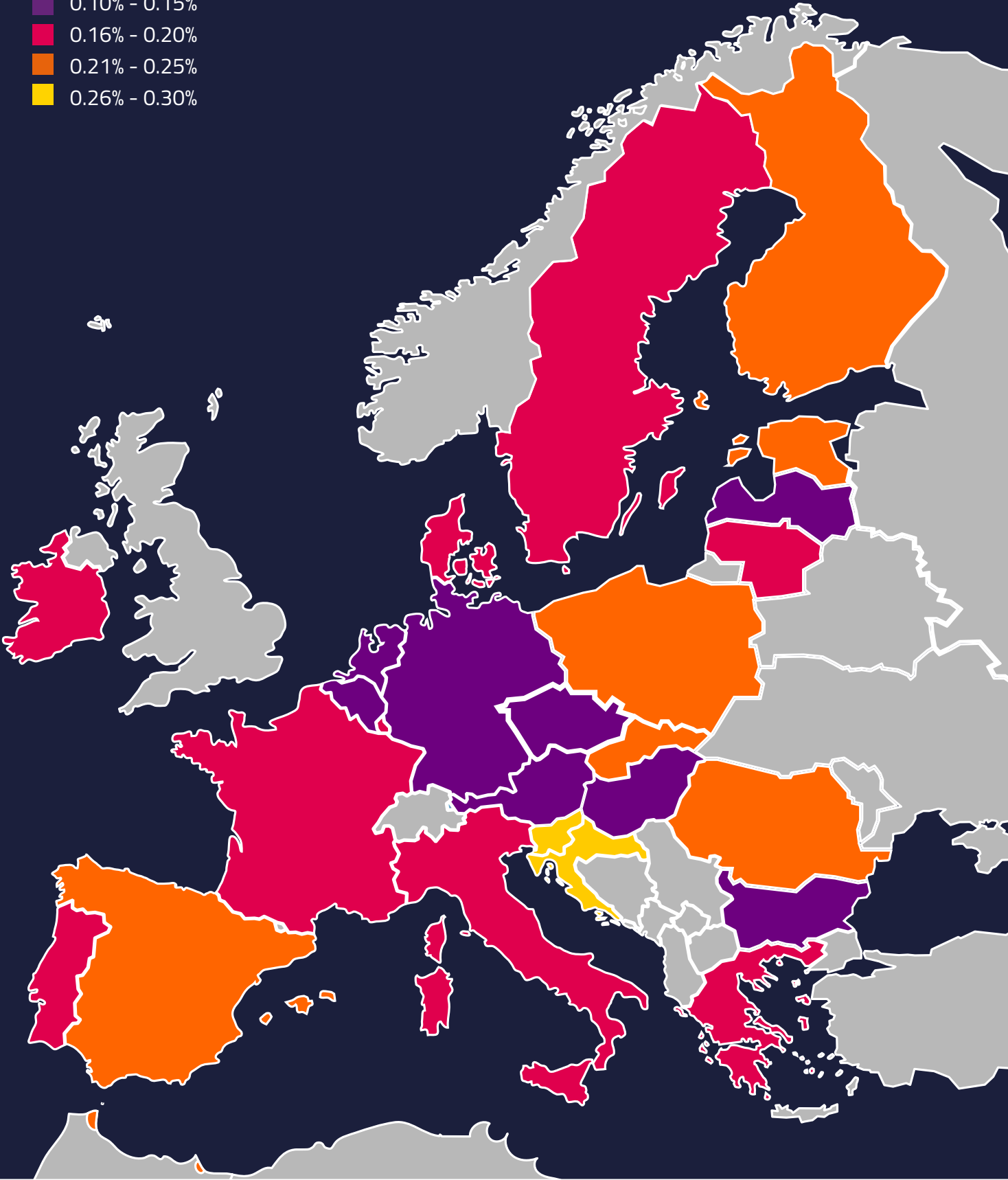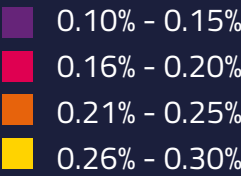
Introduction to the Women in Deep Tech Study

Deep Tech

Deep Tech refers to "companies, typically startups, whose business model is based on high tech innovation or significant scientific advances."[1]

"They present challenges requiring lengthy R&D, and large capital investment before successful commercialization. Their primary risk is technical risk, while market risk is often significantly lower due to the clear potential value of the solution to society. The underlying scientific or engineering problems being solved by deep tech and hard tech companies generate valuable intellectual property and are hard to reproduce." [2]

Deep Tech moves frontier technology in research labs to the market. As Deep Tech progresses in the market, it becomes current tech.[3] However, different versions of a Deep Tech are at different stages of market acceptance. Therefore, Deep Tech startups include both companies that are bringing an initial version of a Deep Tech to the market as well as companies that rely on commercial versions of this Deep Tech to create new product offerings in the market. Deep Tech startups include a mix of new-to-the-market technologies with applications of commercial versions of Deep Tech.[4]

There are many classifications of Deep Technologies. For instance:

"Advanced materials, advanced manufacturing, artificial intelligence, machine learning, biotechnology, blockchain, robotics, photonics, aerospace and space technology, electronics (including semiconductor manufacturing), cyber threat intelligence, fusion power, and quantum computing."[5]

Or "Novel AI, future of computing, novel energy, space tech, synthetic biology, advanced materials, robotics, transportation, foodtech and agritech, cybersecurity. Biotech is excluded from our definition of Deep Tech, except for some segments like AI-first biology."[6]

Deep Tech Startup in the Innovation Ecosystem
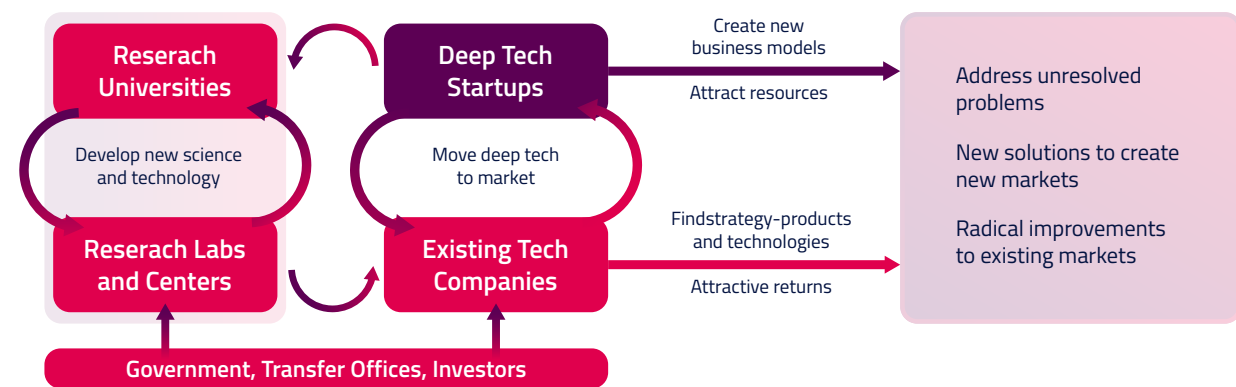
Startups are one of the main mechanisms to translate research into products and services that advance society. However, they are just one of the actors in the ecosystem. Furthermore, the health of Deep Tech startups depends on the health of these other actors, including the quality of research universities and research centres as well as the collaboration with exiting technology companies.

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1   https://dictionary.cambridge.org/dictionary/english/deep-tech, accessed Sept. 4, 2023
2   https://en.wikipedia.org/wiki/Deep_tech, accessed Sept. 4, 2023
3   The term Deep Tech was coined in 2014 by Propel(x) CEO, Swati Chaturvedi and defined it as "companies founded on a scientific discovery or meaningful engineering innovation
4   Dealroom classification does not include biotechnology as Deep Tech
5   https://en.wikipedia.org/wiki/Deep_tech, accessed November 19, 2023
6   The European Deep Tech Report, 2023 Edition, January 2023 by Dealroom.co, Lake Star, and Walden Catalyst

Definitions of women founders in Deep Tech European startups

The focus of the study is the population of startups with the following characteristics:

- European company
- Startup company defined as companies founded after 2010 in the Dealroom database
- Deep Tech company as classified by Dealroom. Thus, we rely on Dealroom expertise to classify startups as Deep Tech.
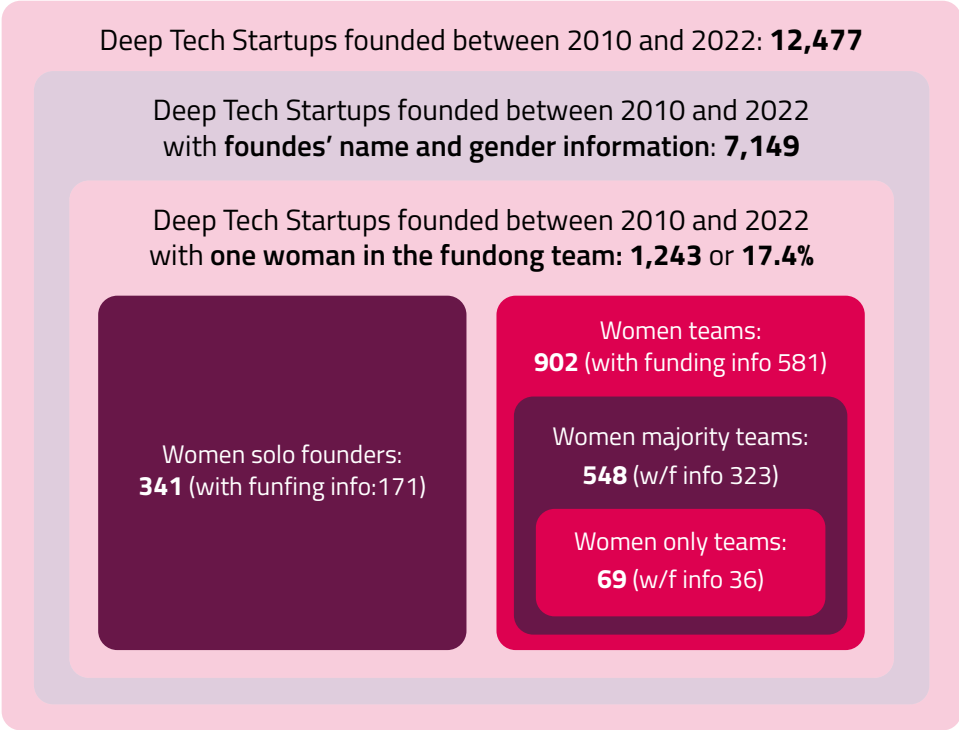
We analysed the final database using both basic descriptive statistics as well as advanced regression models to identify patterns in the database regarding the participation of women founders in Deep Tech.

Women founded	Startup with at least one woman in its founding team.*
Solos	Startups founded by one person.
Majority women	Majority of founders are women (teams and solos).
Majority women teams	Majority of founders are women (teams only).

* Women founded Deep Tech startups are referred to as women Deep Tech startups.

Sample for the study

From the Dealroom database, we identified 12,477 Deep Tech startups founded in Europe between 2010 and 2022. All graphs and statistical analyses in the document refer to this database: European Deep Tech startups founded between 2010 and 2022.

Deep Tech Startups founded between 2010 and 2022: **12,477**

Deep Tech Startups founded between 2010 and 2022 with **foundes' name and gender information**: **7,149**

Deep Tech Startups founded between 2010 and 2022 with **one woman in the fundong team: 1,243** or **17.4%**

Women solo founders: **341** (with funfing info:171)

Women teams: **902** (with funding info 581)

Women majority teams: **548** (w/f info 323)

Women only teams: **69** (w/f info 36)

The Presence of Women Founders in European Deep Tech Startups
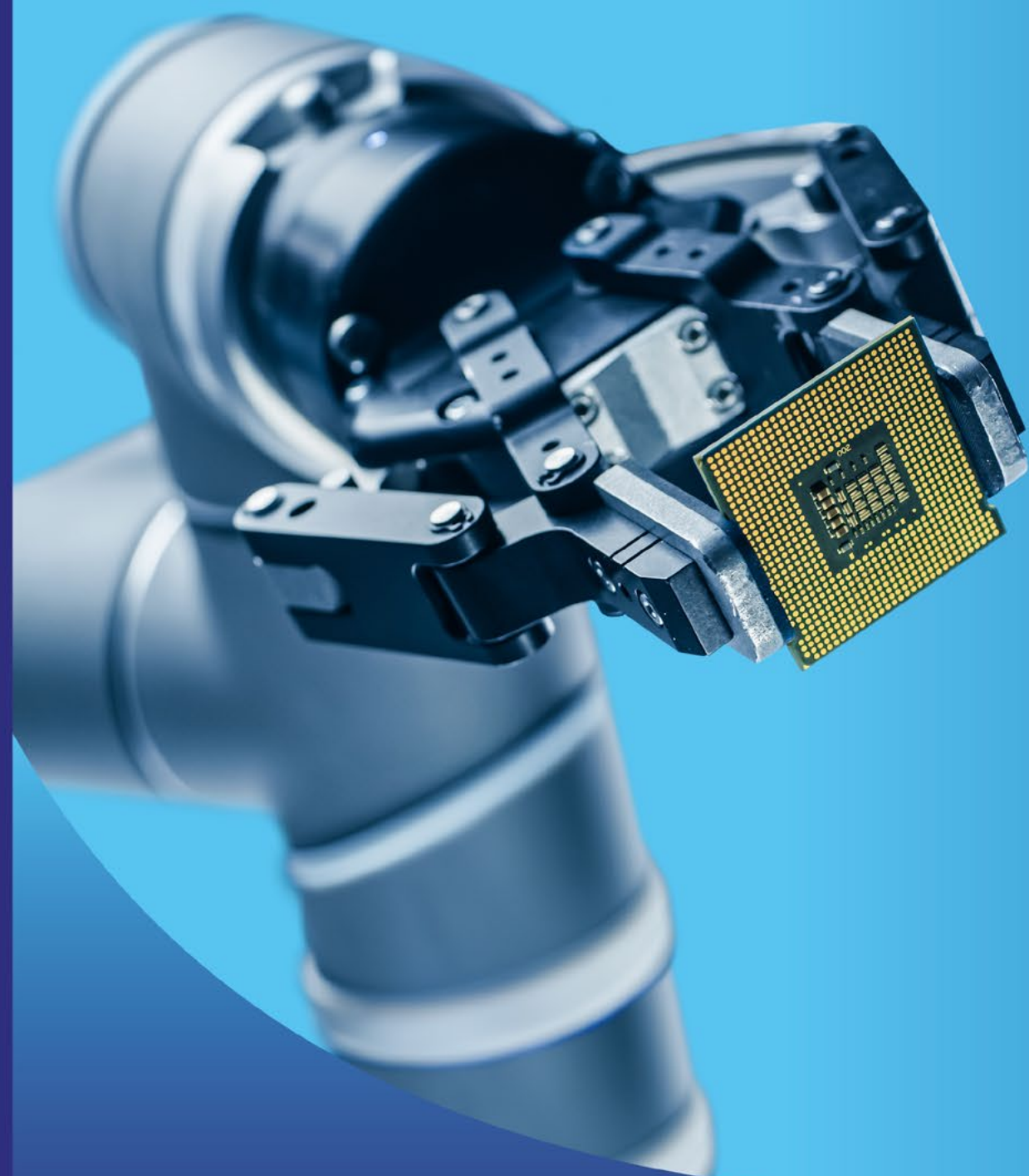
Deep Tech startups launched per year peaked in 2016 and has been steadily decreasing

Sample used for the study September 2023

The number of Deep Tech startups launched in Europe peaked in 2016/17. The data was downloaded in September 2023. In late December 2023, the count of companies using the same search criteria was done. The number of startups signi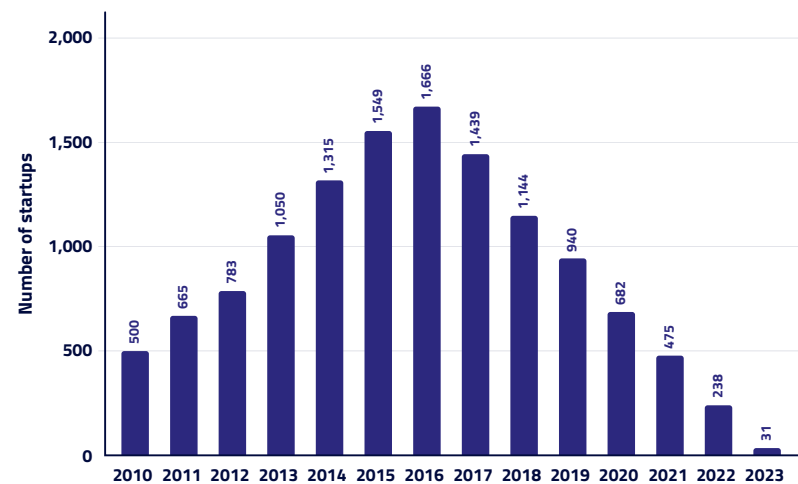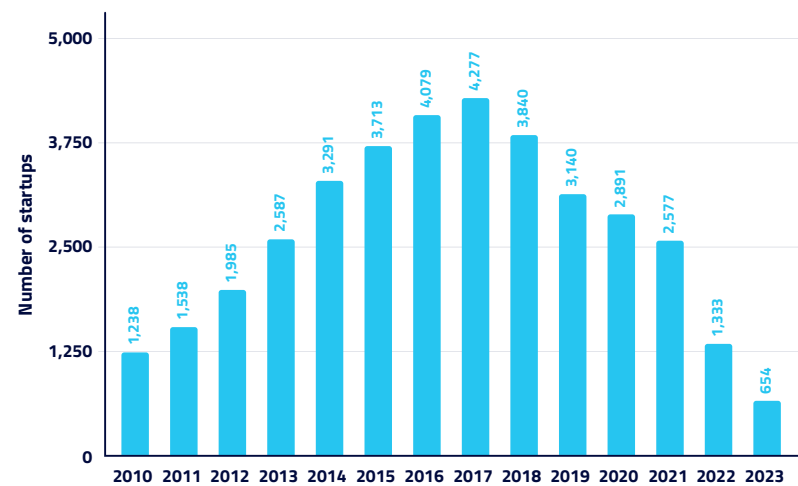ficantly increased, but the pattern is similar. The reason for the increase in the company count was (1) adding new companies, and (2) reclassification of existing companies. According to Dealroom, "about 80% would be re-classification, as this is something we've been working on quite heavily."

The available companies for 2023 is only 31, probably because Dealroom had not yet updated the database. The study is therefore run for companies founded up to 2022. Any references to 2023 is related to these 31 companies founded in 2023 and present in the database for the study and not to be used to draw any conclusions.

From the data available it is not possible to explain the significant drop in Deep Tech startup creation in Europe. Yet, the drop is very significant and worth understanding.

The conclusions of the study are likely not to vary with the changing classifications within Dealroom. First, re-classified companies are likely to be "less" as initially they were not considered deep tech. Second, if they are similar to the original sample, this one is likely to be a random sample of the larger population.

Sample December 2023

The percentage of women Deep Tech startups launched per year has been steadily increasing

Women founded Deep Tech startups are still a minority.

However, the percentage of Deep Tech startups with at least one woman in the founding team has been steadily growing from about 12% in the early part of last decade to about 23% in the early part of this decade.

Because of the drop in the total number of Deep Tech startups, women led startups have decrease since the peak in 2016 at 169.

Number of Women Startups
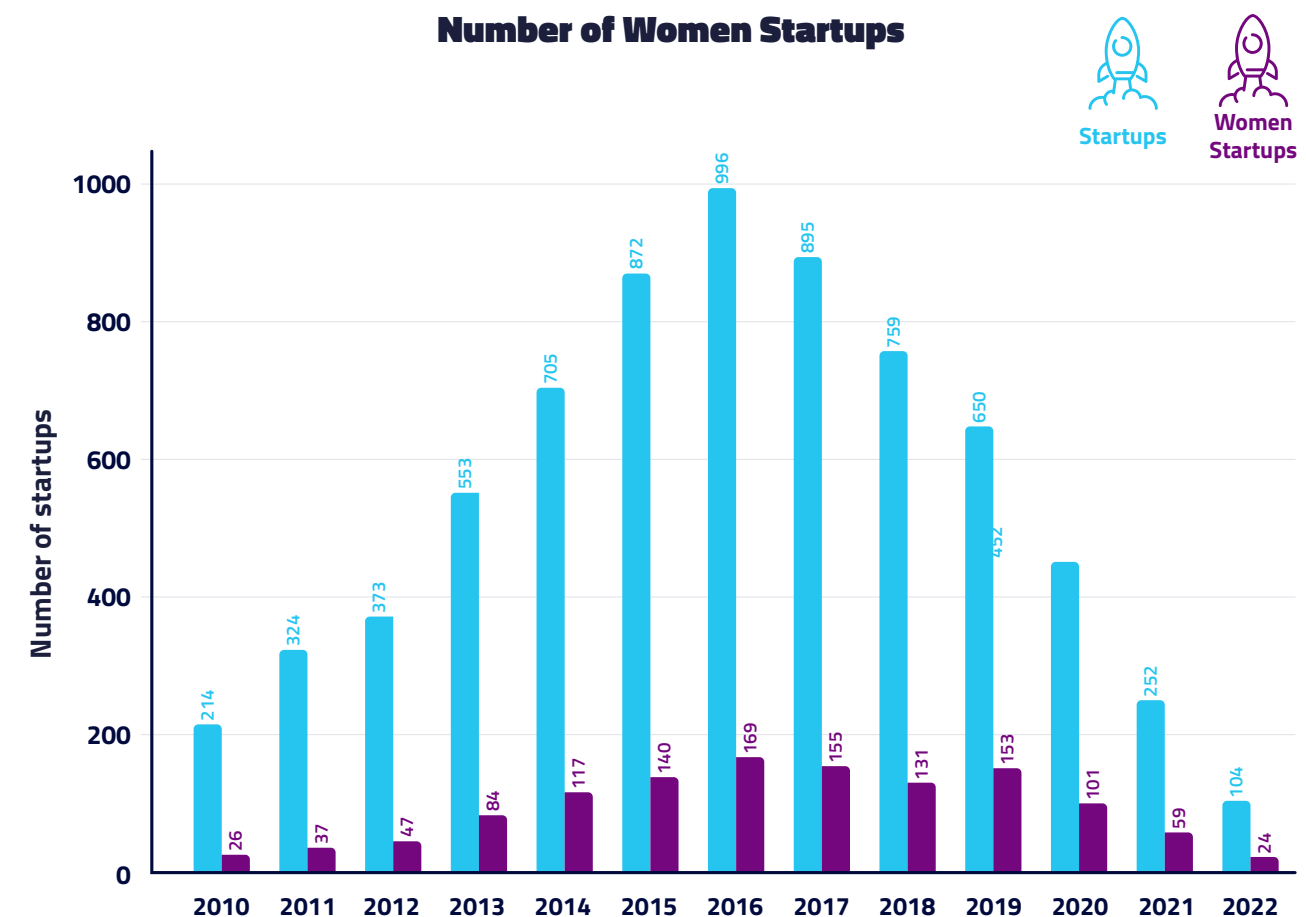
N= 7,165
Startups with gender data

YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
%	12.3	11.3	12.6	15.2	16.6	16.2	17.1	17.7	17.4	23.6	22.4	23.4	24.0

Number of women Deep Tech startups and percentage over total Deep Tech startups

The number of women Deep Tech startups follows a similar pattern as the total number of Deep Tech startups, peaking in the 2016 to 2019 period.

The percentage of women Deep Tech startups has steadily increased from about 12% to 24% over this last decade.

Not surprisingly, women Deep Tech startups are significantly younger. Yet, their size in terms of employees by 2023 is not different.

Women Deep Tech Startups launched per year

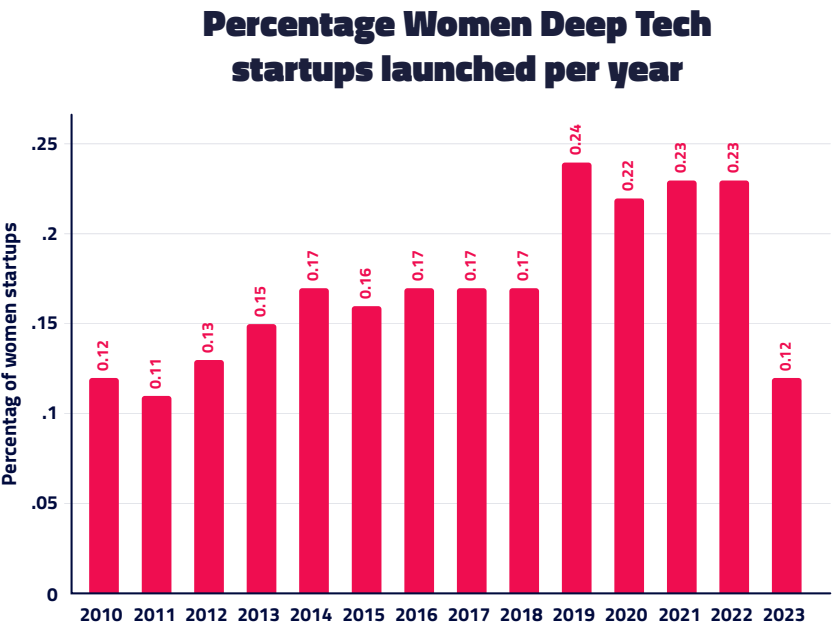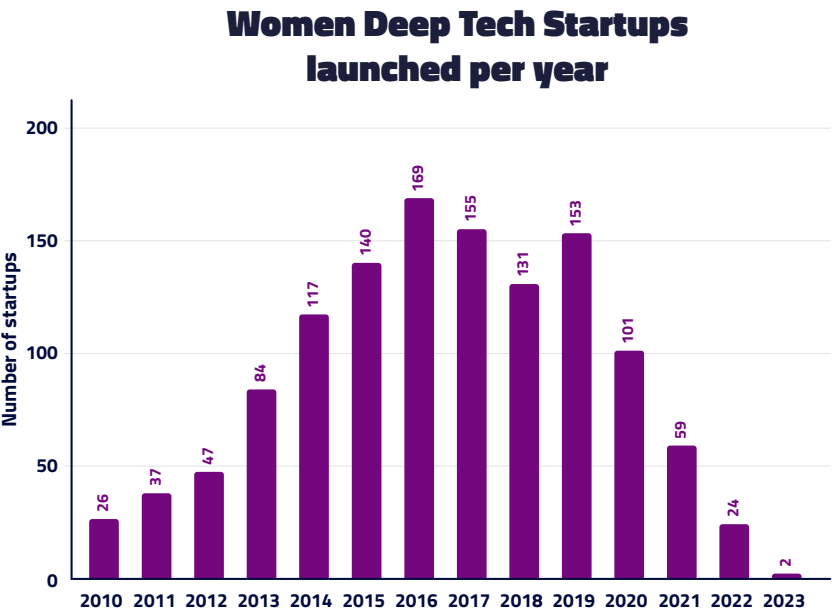### Percentage Women Deep Tech startups launched per year

Women are less likely to found solo startups and are a minority on founding teams

Single founders are the largest set of Deep Tech startups.

The average number of founders is 1.86, with the largest team being 13 founders. However, only 12 startups have more than 6 founders.

On average, startups with women in the founding team are 17.4% over the period (1,243 startups).

Of teams with women founders (including solos), 87.6% have one woman and 11.3% have two.

341 startups are women solo startups, representing 10.5% of all solo startups.

Within startups founded by a team (more than one founder) and at least one woman, the average percentage of women is 46.8%.

Number of founders	Percentage
1	46.0%
2	32.0%
3	14.4%
4	5.4%
5+	2.2%

Number of women founders (including solos)	Percentage
1	87.6%
2	11.3%
3	1.0%
4	0.1%
5+	0%

The percentage of women founders has been steadily increasing

The percentage of women over total number of founders has been steadily increasing over time from about 7% of total founders in the early part of the decade to 14% in 2021 and 2022. This increase appears to happen across European regions.

Percentage of women founders over time

Percentage of women founders over time

Legend: Central Europe, Anglo Saxon, Northern Europe, Southern Europe, Eastern Europe

Percentage of women Deep Tech solo founders has been increasing

The percentage of solo founders had been steadily dropping until 2021 where it grew back to more than 50% in 2022.

The percentage of women Deep Tech solos over total Deep Tech solos has been steadily increasing over the decade.

For Deep Tech startups with a founding team that has women, the percentage of women has remained steady at about 45%.

Percentage of solo startups per year

Percentage of women solo startups per year over solo startups per year
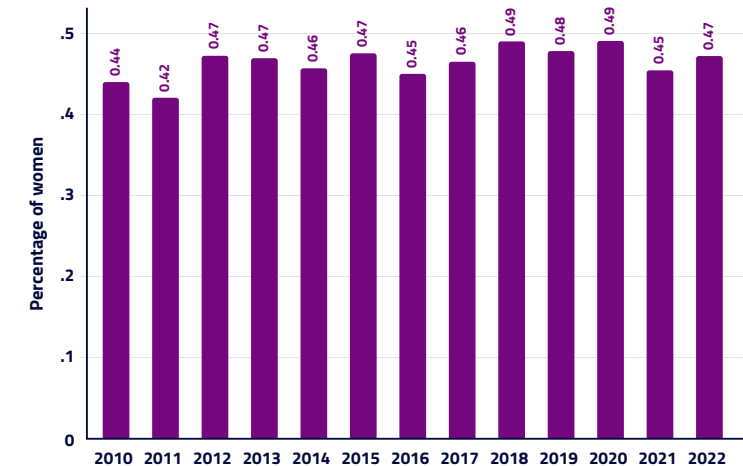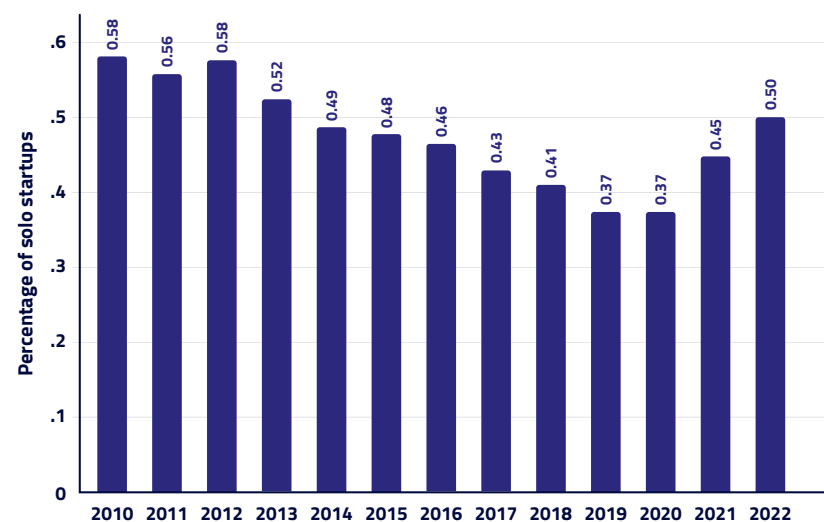
Percentage of women in women teams

Women Deep Tech startups' founding teams are larger and the startups are themselves younger

Among those startups founded by a teams (rather than solos), teams with at least one woman are both younger and have larger founding teams. In other words, women, on average, tend to join larger founding teams.

The differences in size and age are both significant.

Difference in number founders
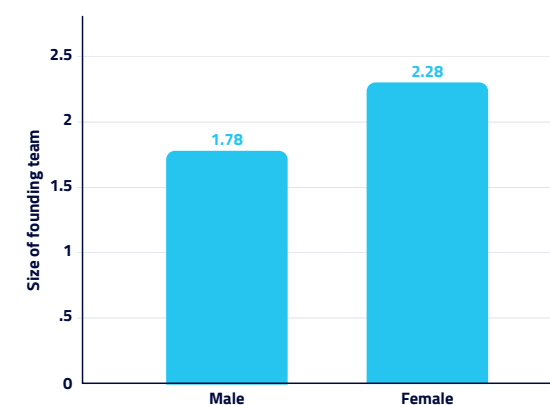
Difference in age of startups
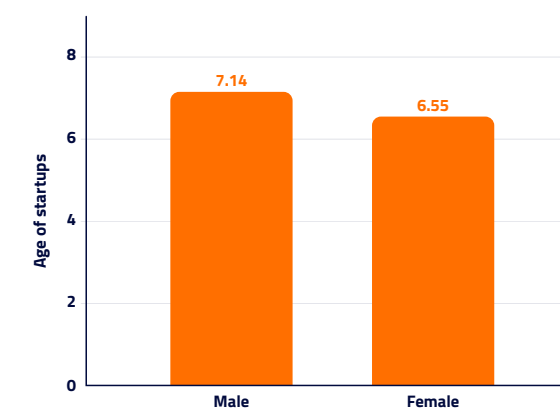
Deep Tech startups launched per country

The country with the most Deep Tech startups launched between 2010 and 2022 is France with 2,616 (21.0%) followed by United Kingdom, Germany, and Spain.

Given the large number of countries and to provide an easier interpretation of the results, we have grouped countries into the following regions:

Eastern Europe: Albania, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Ukraine

Central Europe: Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland

Southern Europe: Andorra, Cyprus, Greece, Italy, Malta, Portugal, San Marino, Spain

Northern Europe: Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Sweden

Anglo-Saxon: Ireland, United Kingdom
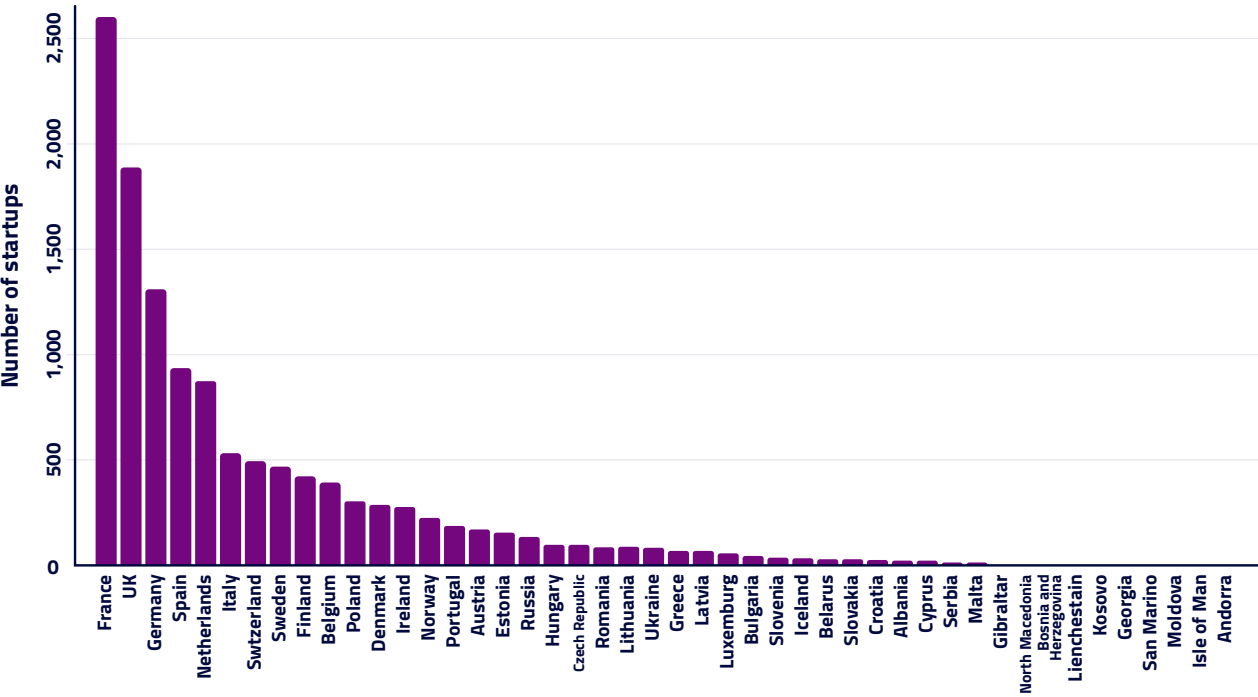
Women Deep Tech startups across regions

Using the sample of startups with gender information on founders, Central Europe has created the most startups in the 2010-2022 period followed by the Anglo-Saxon region.

The percentage of startups with women in their founding team is in the 18% range, with Southern Europe reaching almost 22% of women Deep Tech startups.

For startups founded by at least a woman, about 60% have a majority of women. When excluding solos, the percentage of teams with a majority of women varies from 30% to 42.4%.

Deep Tech startups launched per region

	Central Europe	Anglo-Saxon	Northern Europe	Southern Europe	Eastern Europe
Women startups	15.2%	19.5%	18.0%	21.8%	18.2%
Women majority	58.6%	63.3%	56.3%	68.1%	61.3%
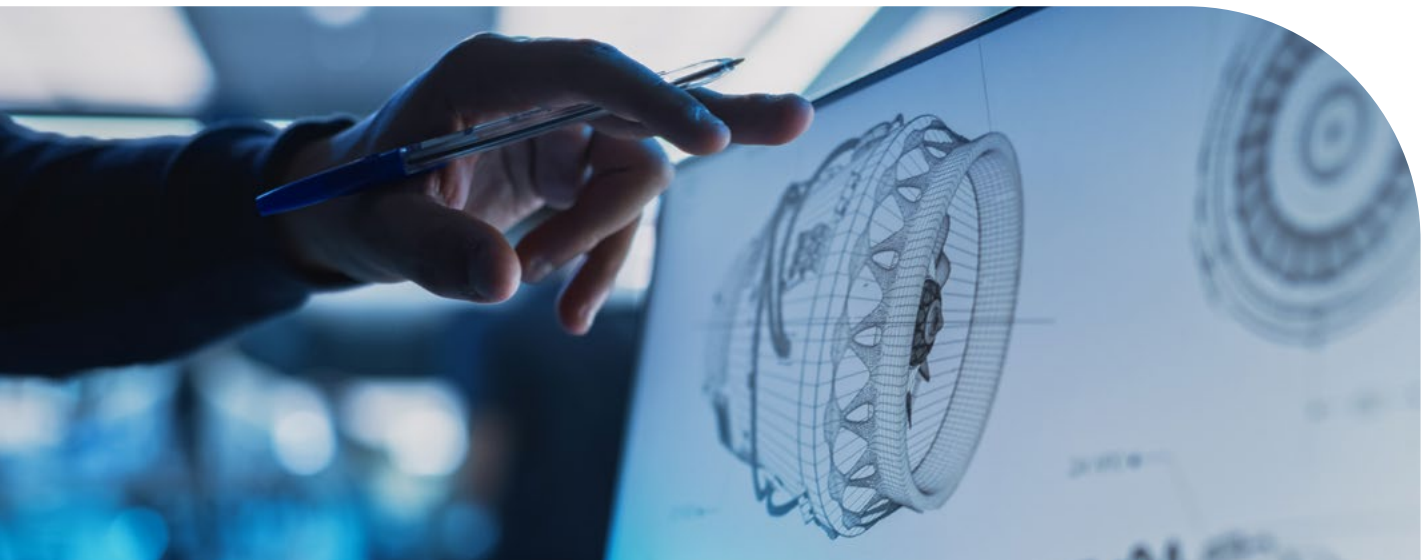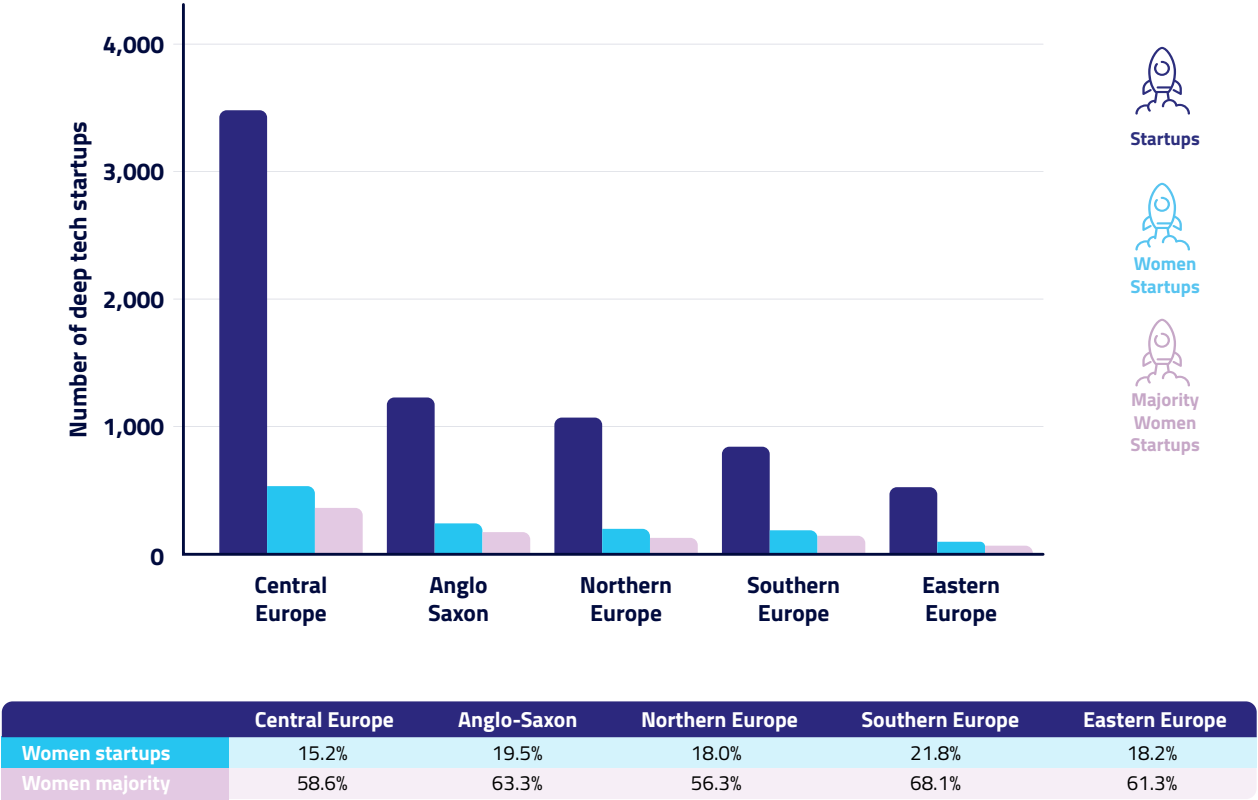
Percentage of women founded Deep Tech startups per country

Using the sample of startups with gender information on founders, we find that most countries are in the 10% to 20%. The outliers are typically smaller countries with very few startups.

Percentage of women per country
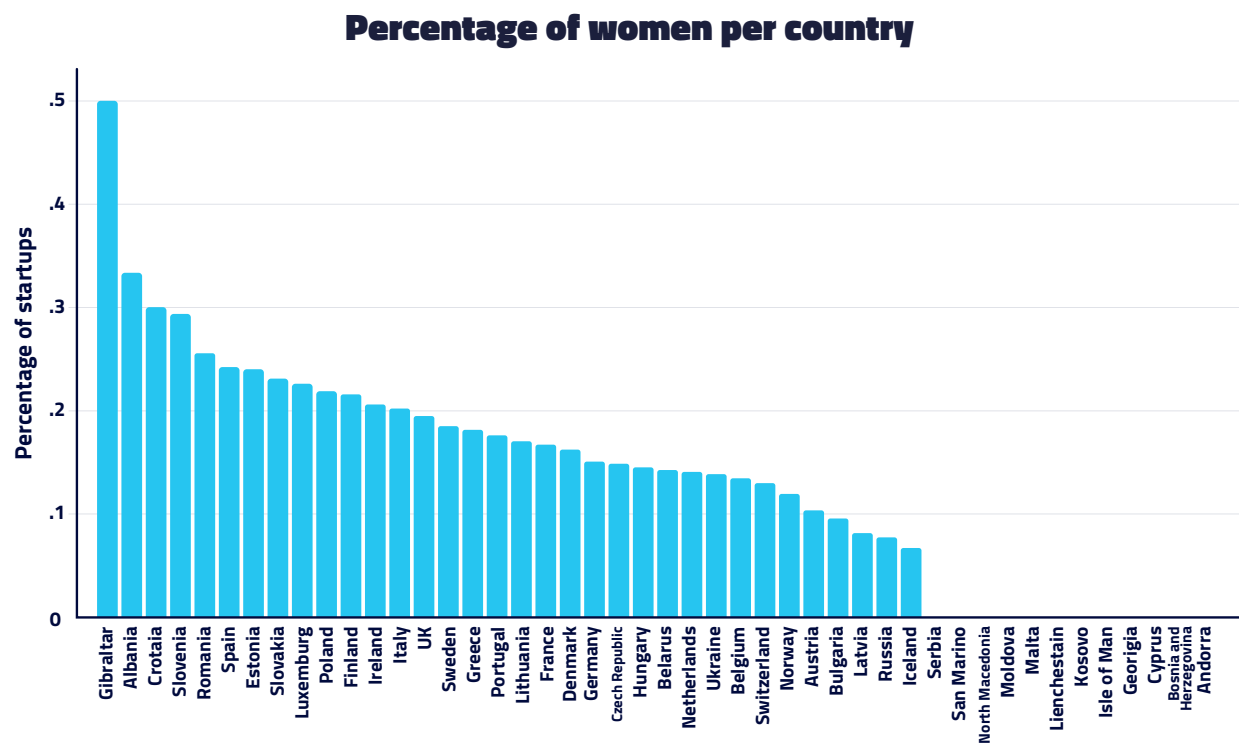
Deep Tech startups per group of technologies

Technologies	Percentage	Grouping
Machine Learning	16.7%	
Big Data	14.0%	
Artificial Intelligence	9.1%	Artificial Intelligence 42.1%
Deep Learning	2.0%	
Natural Language Processing	0.9%	
Augmented Reality	5.3%	
Computer Vision	3.7%	Vision 14.4%
Virtual Reality	2.8%	
Recognition Technology	2.6%	
Internet of Things	8.9%	
Autonomous and Sensor Tech	2.5%	Sensors 14.6%
Connected Device	3.2%	
Hardware	13.0%	Hardware 19.8%
3D Technology	6.8%	
Nanotech	2.8%	
Blockchain	2.6%	
Mobile App	2.2%	
Quantum Technologies	0.9%	

N= 9,080

Artificial intelligence related startups dominate Deep Tech startups in Europe over the 2010-2022 period. One of the reasons being that startups applying rather than developing this technologies are labeled in the database as Deep Tech.

Hardware, sensors and vision-related startups are 48.8% of the sample.

Important technologies such as Quantum technologies, Blockchain, and Nanotech are a small percentage of the sample.

Percentage of women in sectors per country

COUNTRY	Top 1	Top 2	Top3
Austria	Children	Health	Home Living
Belgium	Sports	Entreprise Software	Food
Bulgaria	Sports Health		
Croatia	Children		
Cyprus			
Czech Republic	Fintech	Consumer Electronics	Gaming
Denmark	Legal Education	Gaming	
Estonia	Music	Entreprise Software	Education
Finland	Consumer Electronics	Energy	Children Chemicals Real Estate
France	Chemicals	Consumer electronics	Robotics Marketing
Germany	Children Service Provider	Consumer Apps	
Greece	Media	Food	Entreprise Software
Hungary	Fintech	Home living Fashion	
Ireland	Children Chemicals	Education	
Italy	Media	Energy	Children
Latvia	Children		
Lithuania	Entreprise software	Space	Energy
Luxemburgo	Recruitung	Real Estate	Chemicals
Malta			
Netherlands	Sports	Chemicals	Food Media Music
Poland	Food	Robotics	Energy
Portugal	Education	Entreprise software	Health
Romania	Marketing	Home living Fintech Health	
Slovakia	Health Semicontuctors		
Slovenia	Gaming		
Spain	Engeneering	Legal	Health
Sweden	Sports	Energy	Media

Number of startups per technology group and per year

During the 2010-2022 period, Artificial intelligence has dominated European Deep Tech startups.

Sensors increased their weight in the middle of the decade but then dropped again.

Vision startups have been steadily declining from almost 20% early in the decade to less than 10% in early 2020s.
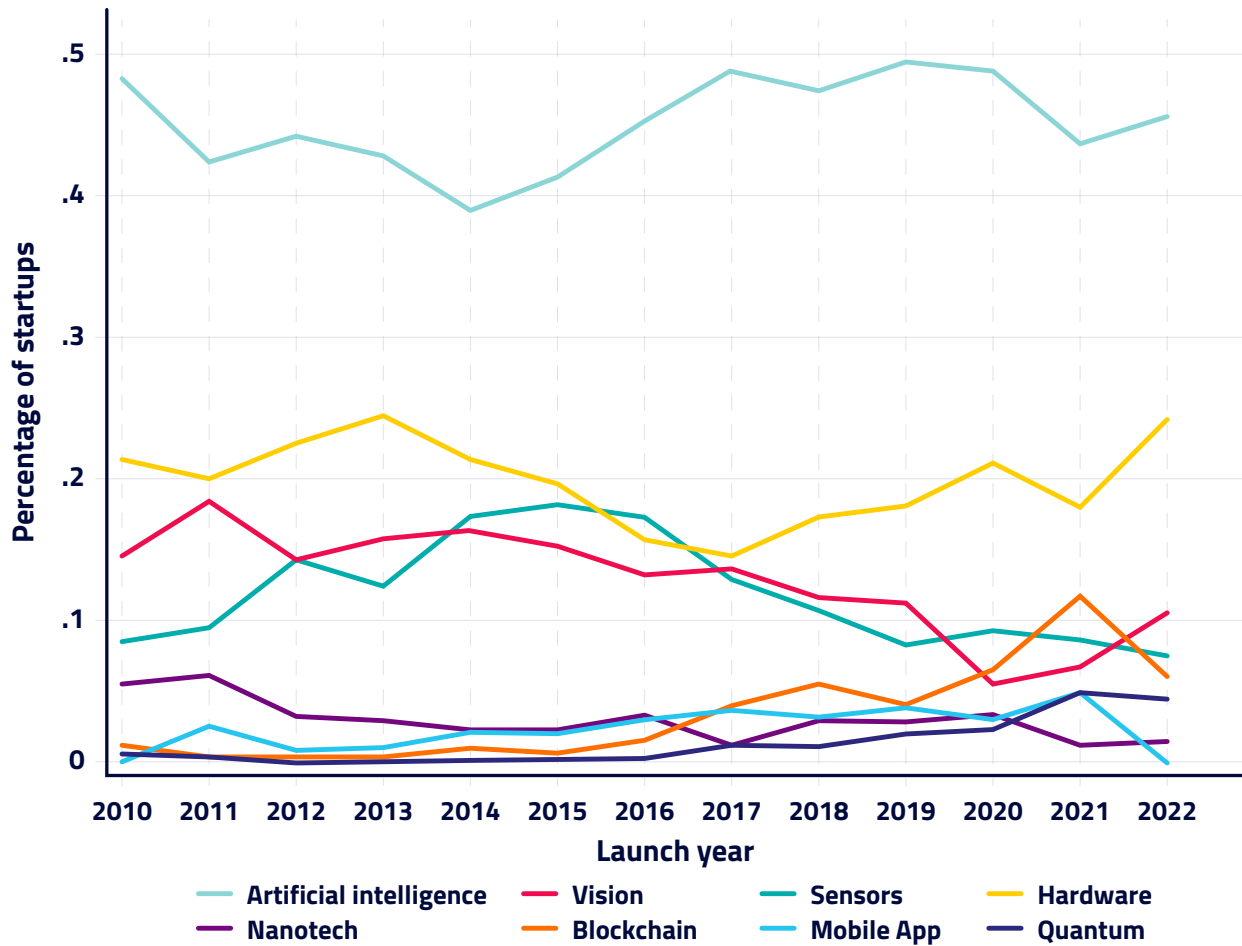
Deep Tech startups per technology groups

The percentage of women startups is evenly distributed across technologies. Only the smaller technologies of nanotech, mobile apps, and quantum have a higher percentage of women startups.

For teams with at least a woman (excluding solos), the percentage of teams with majority of women is between 25% and 38%.

	Artificial Intelligence	Hardware	Vision	Sensors	Nanotech	Blockchain	Mobile App	Quantum
Women startups	17.0%	18.1%	16.9%	10.9%	26.0%	19.6%	29.0%	25.5%
Women majority	61.9%	54.0%	61.3%	65.0%	63.0%	56.5%	62.9%	25.0%
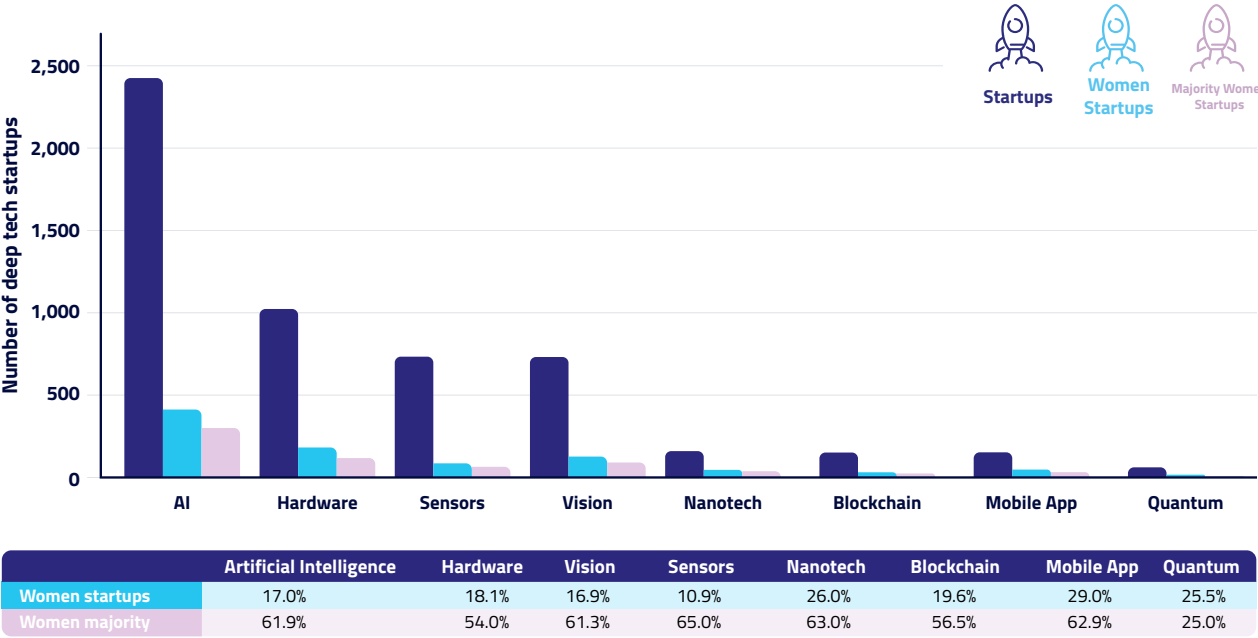
Women are less likely to found a Deep Tech startup alone

This regression evaluates the effect of women founders, regions, and technologies on the likelihood of being a solo founder. The Anglo-Saxon region and Artificial Intelligence are the references.

Women are less likely to found a startup on their own.

Central Europe and Northern Europe have fewer solo startups compared to the Anglo-Saxon region.

Sensors and vision startups have more solo founders than artificial intelligence.

Unreported tests indicate that the lower women solo founders does not vary across regions. However, vision startups have fewer solo woman startups than artificial intelligence.

TIME TO FIRST FUNDING	Coefficient	Standard error
Woman	-1.02 ***	0.08
REGIONS		
Central Europe	-0.25 ***	0.08
Eastern Europe	0.15	0.12
Northern Europe	-0.18 *	0.10
Southern Europe	-0.06	0.10
TECHNOLOGIES		
Blockchain	0.10	0.17
Hardware	0.08	0.08
Mobile app	-0.01	0.18
Nanotech	0.11	0.17
Quantum	-0.32	0.31
Sensors	0.33 ***	0.09
Vision	0.21 **	0.09
Constant	-0.01	0.08

N=5,385

A regression model considers simultaneously the influence of various variables on the dependent variable. In this case, it examines the influence on a startup being a solo startup (SOLO) of being a women founding team, the various regions, and the various technologies. After considering Regions and Technologies, having women in the founding team lower the likelihood of being a solo startup. *** Indicates significance at 1%, ** at 5%, and * at 10%.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women founded Deep Tech startups grow slower in terms of employee growth

AVERAGE STARTUP GROWTH	Coefficient	Standard error
Number of founders	2.10 ***	0.26
Solo	0.67	0.58
Age	-0.16 *	0.07
Women team	-0.84 *	1.20
REGIONS		
Central Europe	-1.25 **	0.57
Eastern Europe	-2.30 ***	0.90
Northern Europe	-1.50 **	0.72
Southern Europe	-2.72 ***	0.77
TECHNOLOGIES		
Blockchain	1.51	1.29
Hardware	0.32	0.57
Mobile app	-0.24	1.38
Nanotech	-1.74	1.28
Quantum	1.90	2.17
Sensors	-1.01 *	0.63
Vision	-1.08 *	0.65
Constant	3.26 ***	1.00

The average yearly growth of a Deep Tech startup is 3.23 employees.

The presence of women in the founding team makes growth slower.

However, larger founding teams are associated with more growth.

Anglo-Saxon startups grow faster than their counterparts in the rest of Europe.

This regression evaluates the simultaneous influence of number of founders in the founding team, solo startups, age of the startup, the presence of women in the founding team, regions, and technologies on the average employee growth of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Deep Tech startups grow with age in number of employees and revenue

Deep Tech startups grow both in terms of employees and revenues as they age. By age 10, they reach an average of 42 employees and more than €6 million in revenue.

However, this analysis should be read cautiously as only the most successful startups reach older ages. Thus, the average number of employees at age 10 only includes those startups that survived 10 years, which tend to be the most successful. Moreover, the graphs report the average, with successful startups growing well beyond 42 employees and driving the average up. The median employee growth reaches 14 employees in year seven, while median revenue reaches €1.5 million by year 10.

Average employee growth

Number of employees vs Age of startup

Average revenue growth

Revenues (millions of euros) vs Age of startup
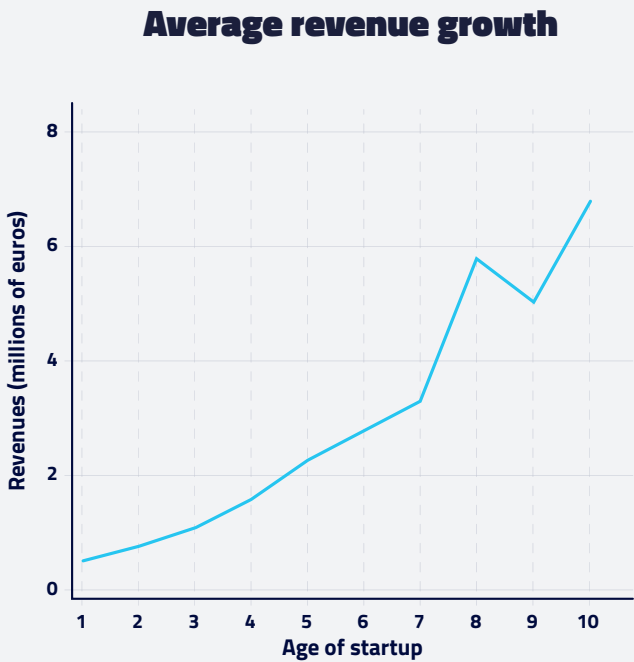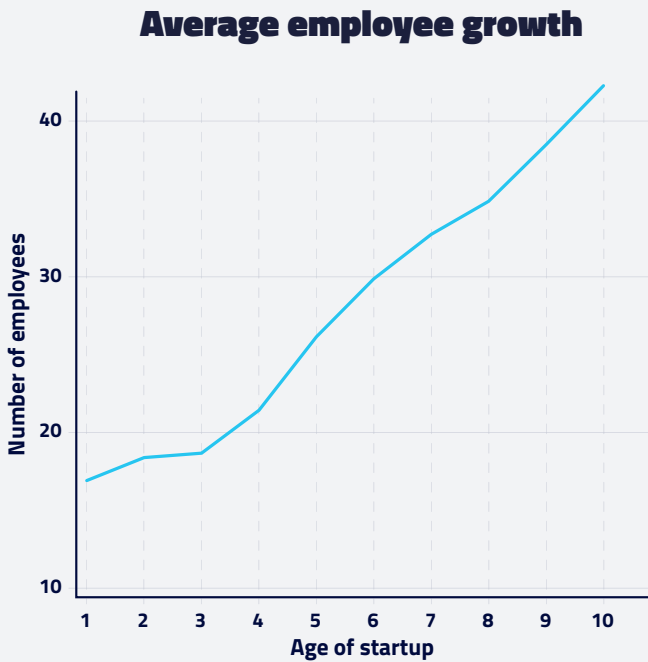
Employee and revenue growth of Deep Tech startups is not significantly different across gender teams

Average (as well as median) employee growth is not significantly different between women teams and male-only teams.

Similarly, average (as well as median) revenue growth is not significantly different across different gender teams.

Average employee growth
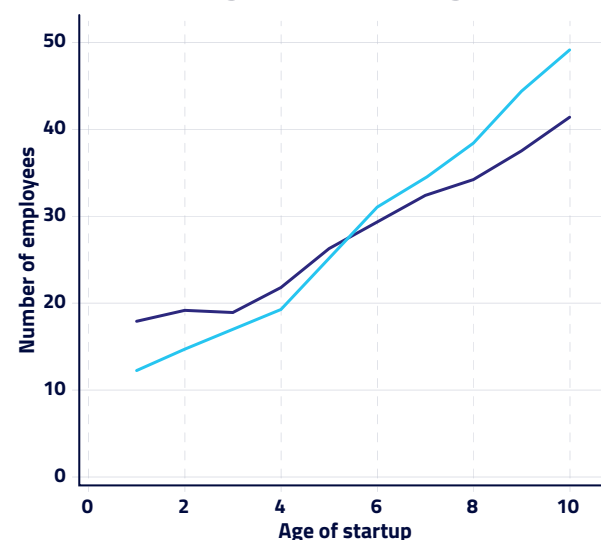
Average revenue growth
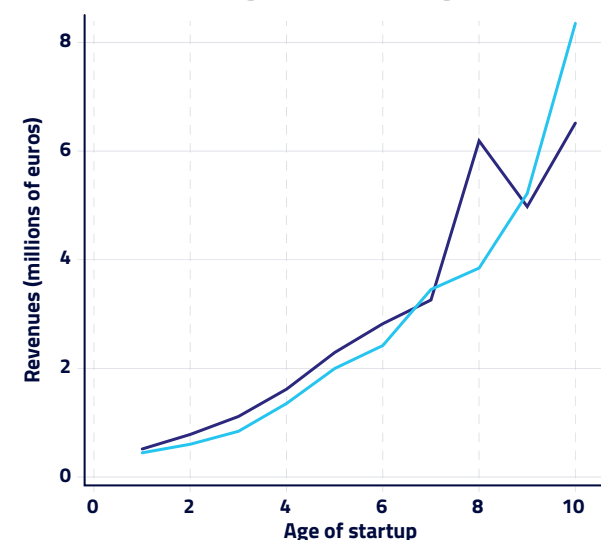
Profit (Loss) over age of Deep Tech startups is no different across gender teams

Deep Tech startups are, on average, unprofitable, which is consistent with these startups requiring significant investment upfront to bring the technology to market. The average loss increases with age as the weight of larger startups increases and these startups requiring larger investments. The median loss is much smaller at about €50,000 per year.

There is no significant difference in terms of profitability between women startups and male-only startups.

Profit/loss growth

Men Teams **Women Teams**
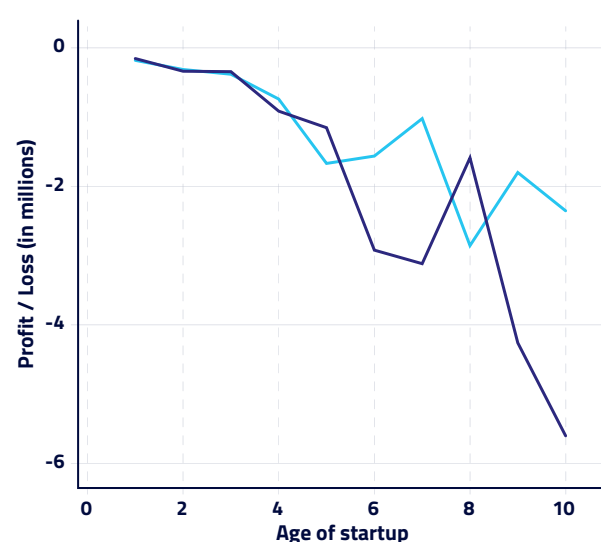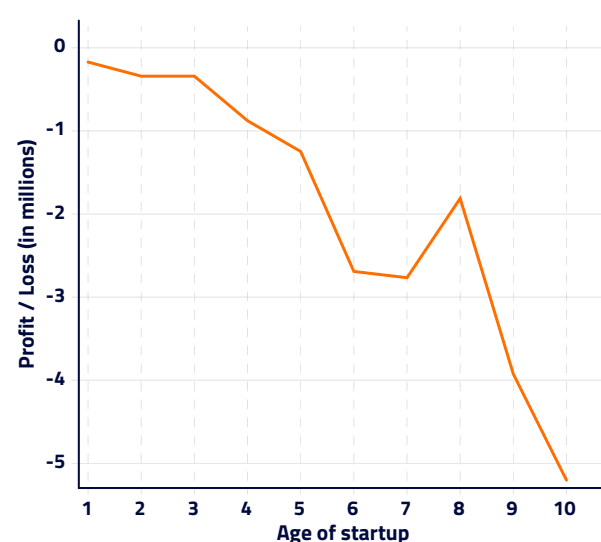
EBITDA over age of Deep Tech startups is no different across gender teams

EBITDA (Earnings Before Interest Taxes Depreciation and Amortization) is also negative and increasing consistent with these startups requiring significant investment to bring the technology to market. The average is dominated by larger startups. The median indicates a minimum negative EBITDA of €60,000 in years five and seven.

There is no statistical difference between women startups and male-only startups.

EBITDA growth
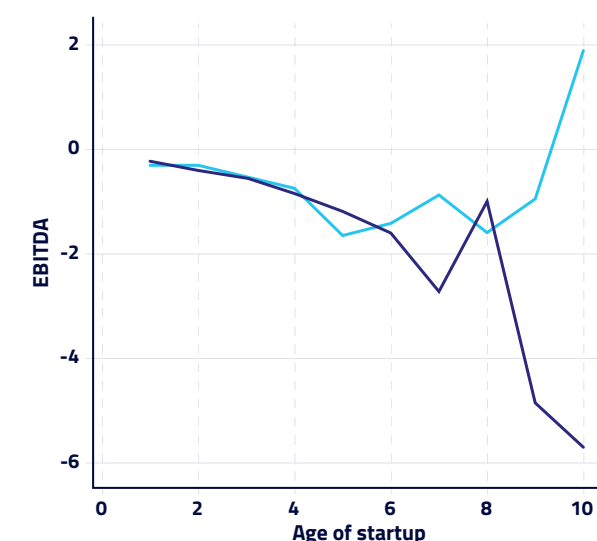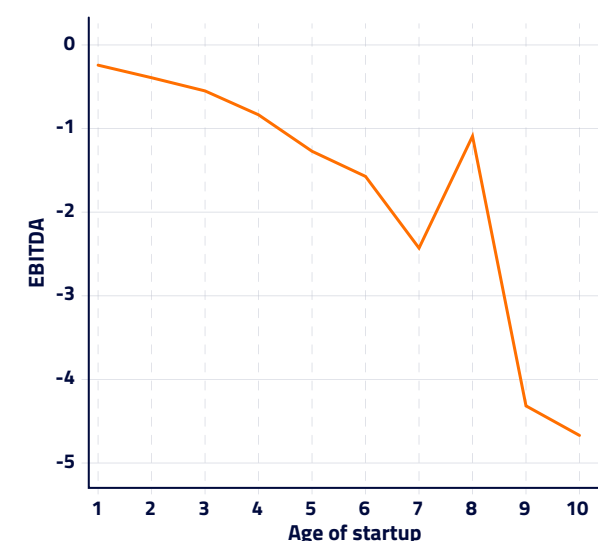
Women founders have significantly higher degrees of education

Women founders have on average higher degrees of education.

Women with PhDs represent 14.1% of all founders with a PhD, compared to an 11.6% of women founders. Thus, the percentage of women founders with PhD over all founders with a PhD is higher than the percentage of women in the population of founders. There are more women in the population of founders with PhD than in the overall founders' population.

Women with a Masters' degree are 12.4% compared to 11.6% of women in the founders' population.

Women with a Bachelor degree is 10.3%, lower than the percentage of women founders.

High school degree is rare with only 6 observations out of 4,503.

EDUCATION	High School	Bachelor	Master	PhD	Total
GENDER					
Female	33.3%	10.3%	12.4%	14.1%	**11.6%**
Male	66.7%	89.7%	87.6%	85.9%	**88.4%**
Total	100%	100%	100%	100%	**100%**

Funding characteristics of women in Deep Tech startups

Funding of Deep Tech startups has been increasing with 11.4% going to women founded startups

Total funding has been increasing over time, indicating that investors perceive this space as more attractive. This is despite the decreasing number of startups founded in this space.

There is a large increase in 2021 and 2022 due to a few large rounds.

The percentage of funding going to women founded startups (11.4%) is lower than the percentage of women founded startups (17.4%).

Total funding over time
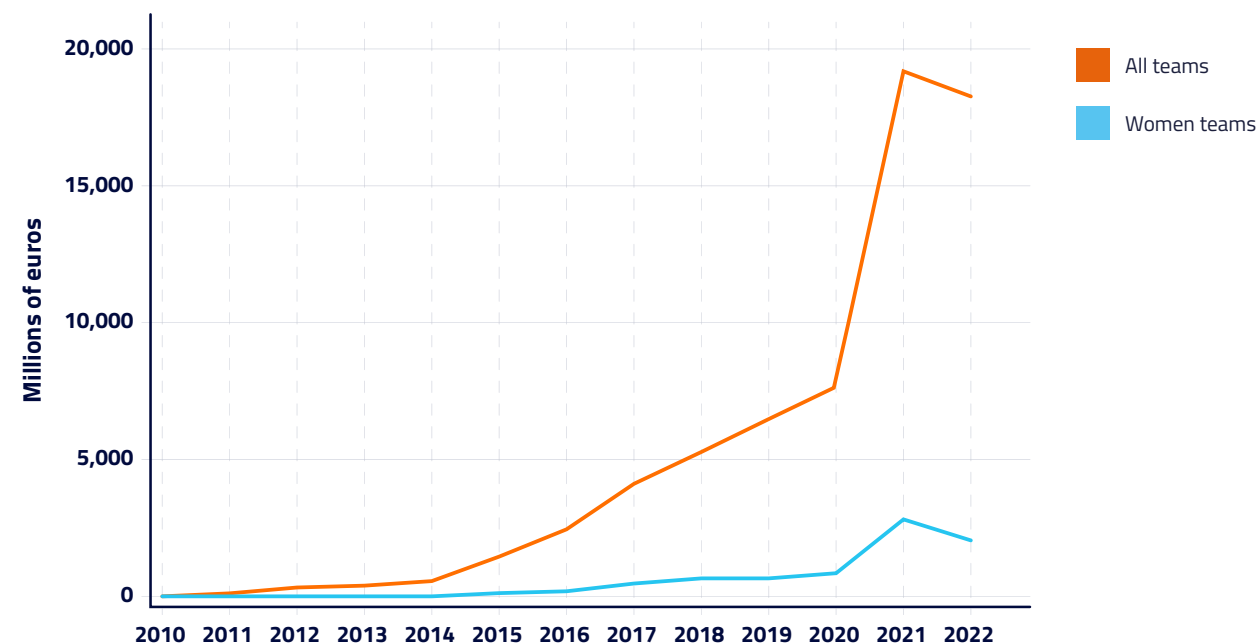
Percentage of funding to women founded startups
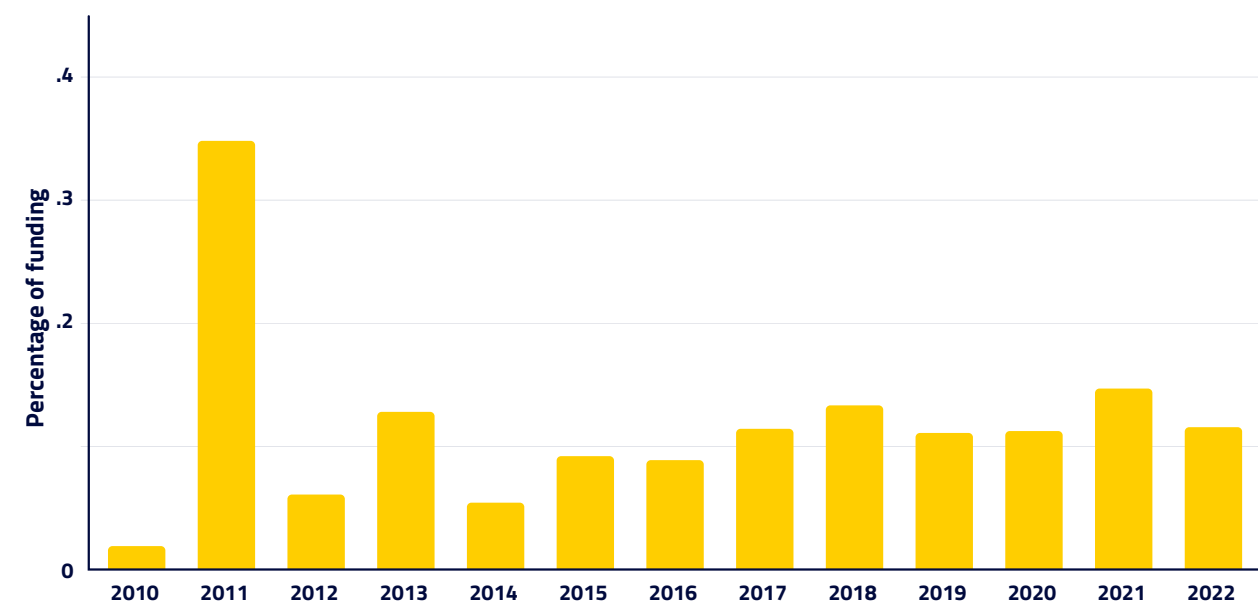
Funding to women Deep Tech startups is larger in Central Europe and Anglo-Saxon regions

Women Deep Tech startups have seen their funding increase over time as successful Deep Tech startups have been growing. Women Deep Tech startup funding is dominated by Central Europe and the Anglo-Saxon regions followed by Northern Europe.

Women founded startups' funding per year and region
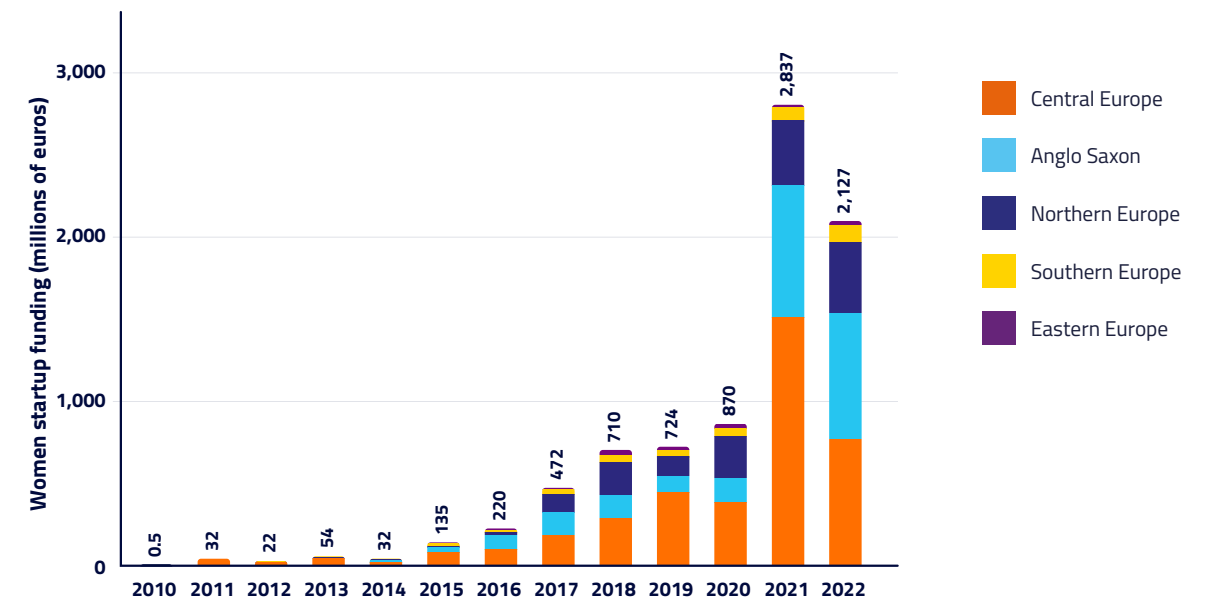
Percentage of funding going to women founded startups per country in 2022

0%
>0% – 10%
10% – 25%
25% – 50%
50% – 75%

* No country above 65%
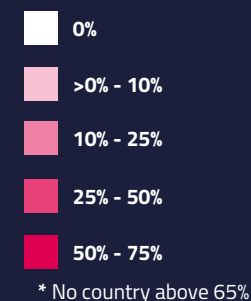
Women Deep Tech startups receive their first funding faster

Women Deep Tech startups get funding faster.

The percentage of women Deep Tech startups that receive funding in their first year over all the startups that receive funding in that first year is 46% compared to the 17.5% that women startups represent over the total number of startups.

Women Deep Tech startups on average are funded at 0.97 years of age, while men-only startups take 1.2 years.

Average age at first external funding

Startups and age at first external funding
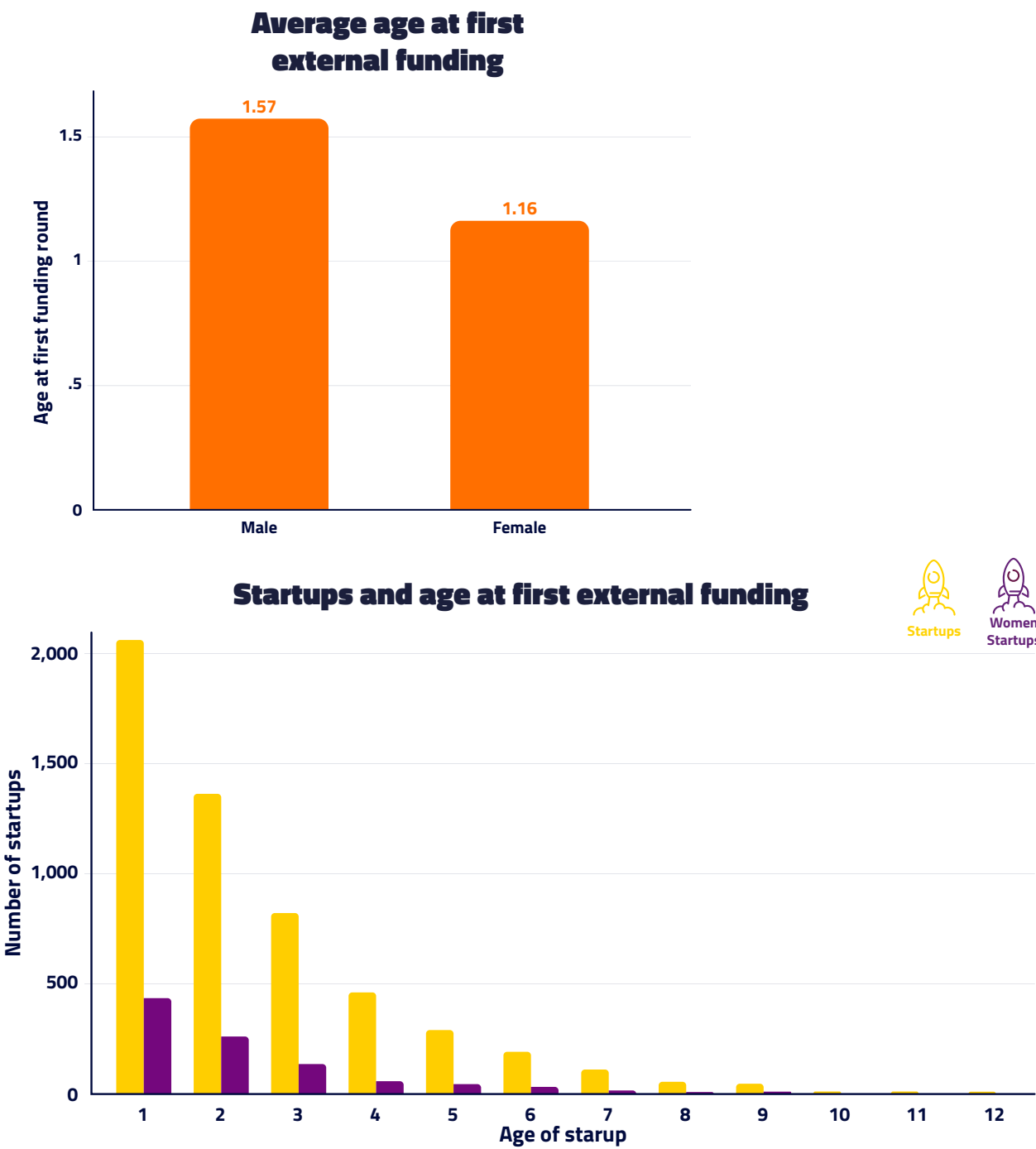
Women Deep Tech startups receive the first funding faster

Women Deep Tech startups are faster at receiving outside funding.

Larger founding teams are also faster at receiving outside funding.

Startups with more patents are marginally slower at receiving outside funding.

Time to first funding does not vary across technologies.

Northern European startups are slower to funding than Anglo-Saxon region startups.

TIME TO FIRST FUNDING	Coefficient	Standard error
Women founding team	-0.32 ***	0.07
Number of founders	-0.18 ***	0.03
Number of patents	0.01 *	0.01
REGIONS		
Central Europe	0.02	0.08
Eastern Europe	0.07	0.10
Northern Europe	0.25 ***	0.08
Southern Europe	-0.13	0.09
TECHNOLOGIES		
Blockchain	-0.03	0.16
Hardware	0.00	0.08
Mobile app	0.03	0.17
Nanotech	-0.08	0.15
Quantum	-0.35	0.27
Sensors	0.01	0.09
Vision	0.04	0.09
Constant	1.75 ***	0.08

N=3,98

This regression evaluates the simultaneous influence of number of founders in the founding team, the presence of women in the founding team, number of patents, regions, and technologies on the time to first funding of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Most startups do not receive external funding

Most companies in the database have not received external funding; therefore, they do not have any founding round. 42.7% of the startups receive external funding.

Not surprisingly the number of total startups and women startups decrease with the number of rounds.

Startups and number of rounds

Startups
Women Startups
Majority Women Startups
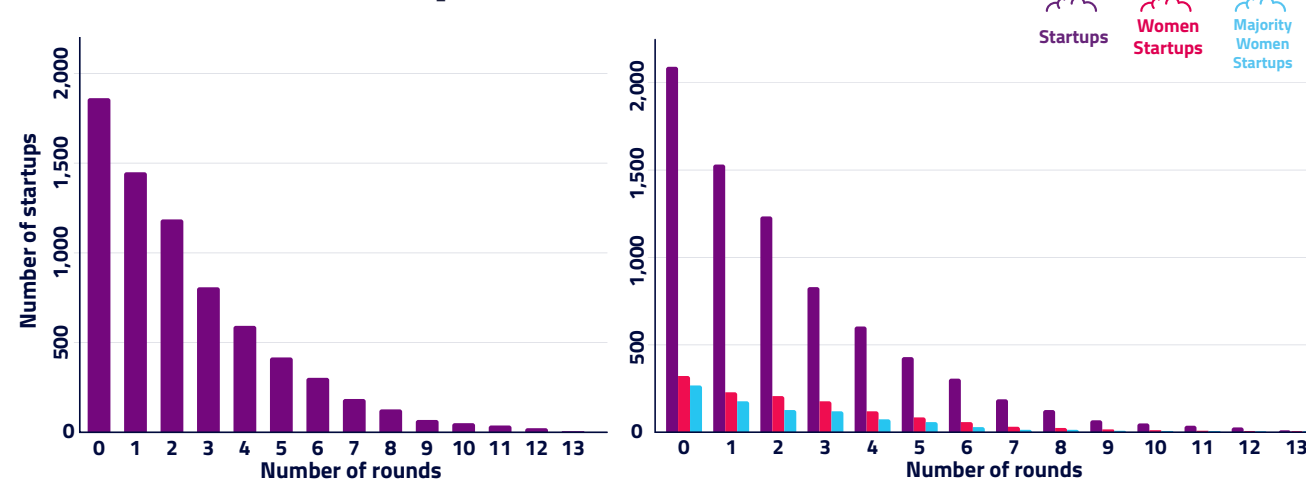
About 15% of the total startups receiving funding are women Deep Tech startups

Grouping rounds of funding as:

- Pre-seed for rounds less than €1 million.
- Seed in between €1 million and €4 million.
- Series A in between €4 million and €15 million.
- Series B from €15 million to €40 million.
- Series C from €40 million to €100 million.
- Mega for rounds above €100 million.

The percentage of women startups in each of these groups is comparable at 14.6% of the rounds.

This percentage is significantly lower than the 17.4% of women startups.

Percentage of women rounds
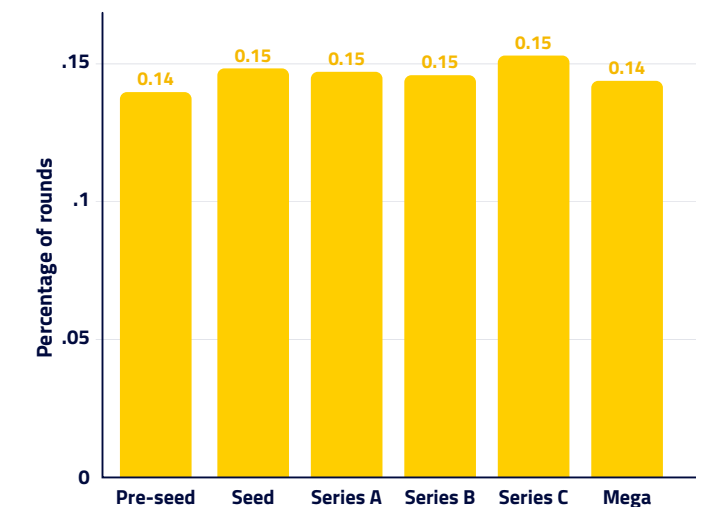
About 1,550 startups receive more than €5 million in external funding

Startups and total funding
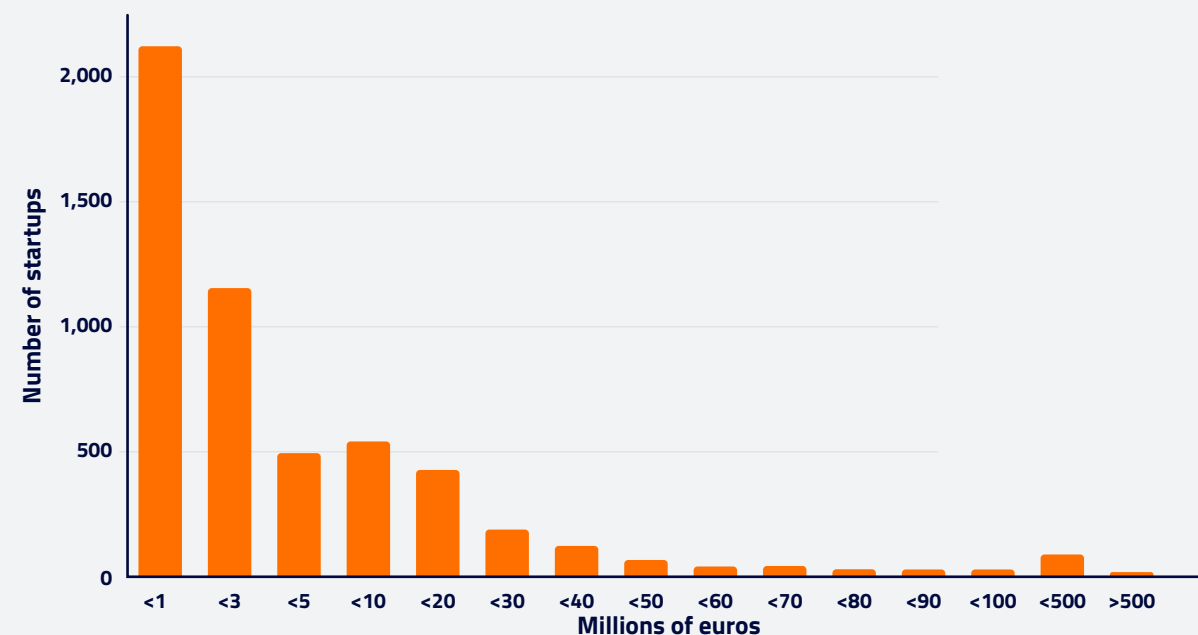
As the number of rounds and total funding increase, the number of companies drops. Of a total sample of 5,323 startups that receive funding, about 1,550 have received total funding of more than €5 million.

More funding rounds is correlated with higher total average funding.

Average total funding and number of rounds
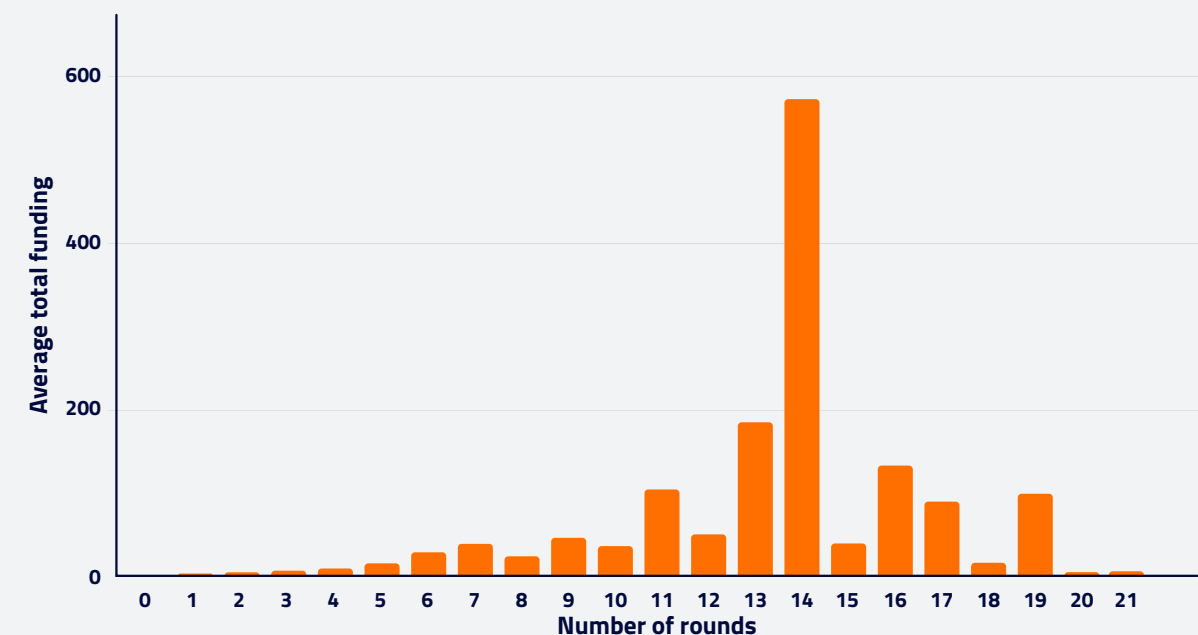
Women Deep Tech startups <u>appear to</u> receive more rounds but not more funding

These graphs show the average total funding and the average number of rounds for Deep Tech startups that receive external funding. While average total funding is comparable between women Deep Tech startups and male-only Deep Tech startups across most regions, the average total funding is lower when the founding team has a majority of women.

Funding is higher in the Anglo-Saxon region, Northern Europe and Central Europe, with women startups receiving a comparable average funding in the Anglo-Saxon and Central Europe region.

Anglo-Saxon startups receive on average 3.4 rounds of funding, while Eastern European startups receive 2.4.

Women startup appear to receive more rounds of funding across all regions.

Average total funding per region
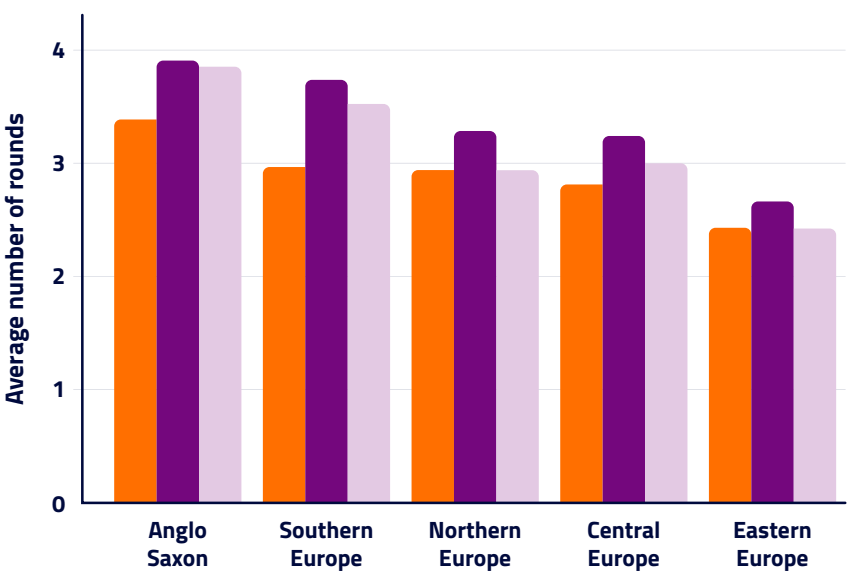
Startups

Women Startups

Majority Women Startups

Average rounds per region

Women Deep Tech startups do not receive more rounds

NUMBER OF ROUNDS	Coefficient	Standard error
Women founding team	0.06	0.09
Number of founders	0.63 ***	0.03
Age	0.13 ***	0.01
Number of patents	0.14 ***	0.01
REGIONS		
Central Europe	-0.82 ***	0.10
Eastern Europe	-1.16 ***	0.15
Northern Europe	-0.64 ***	0.12
Southern Europe	-0.33 ***	0.1
TECHNOLOGIES		
Blockchain	0.52 ***	0.21
Hardware	0.35 ***	0.09
Mobile app	0.30	0.21
Nanotech	1.15 ***	0.21
Quantum	0.64 *	0.35
Sensors	0.74 ***	0.15
Vision	-0.34 ***	0.11
Constant	0.89 ***	0.15

N=5,396

When including the size of the founding team and the age of the startup, the presence of women in the founding team becomes irrelevant in explaining the number of rounds.

Larger founding teams receive more rounds of funding as well as older startups and startups with more patents.

Startups in all regions receive less rounds of funding than startups in the Anglo-Saxon region.

Artificial intelligence startups receive less rounds of funding than startups in blockchain, hardware, nanotech quantum, and sensors but more than vision startups.

The results are consistent if we only consider smaller rounds (last funding less than €1 million), except for technologies where artificial intelligence gets fewer rounds than nanotech, and sensors.

This regression evaluates the simultaneous influence of the presence of women in the founding team, number of founders, age, number of patents, regions, and technologies on the number of rounds of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

When not all the relevant variables are included can lead to wrong conclusions

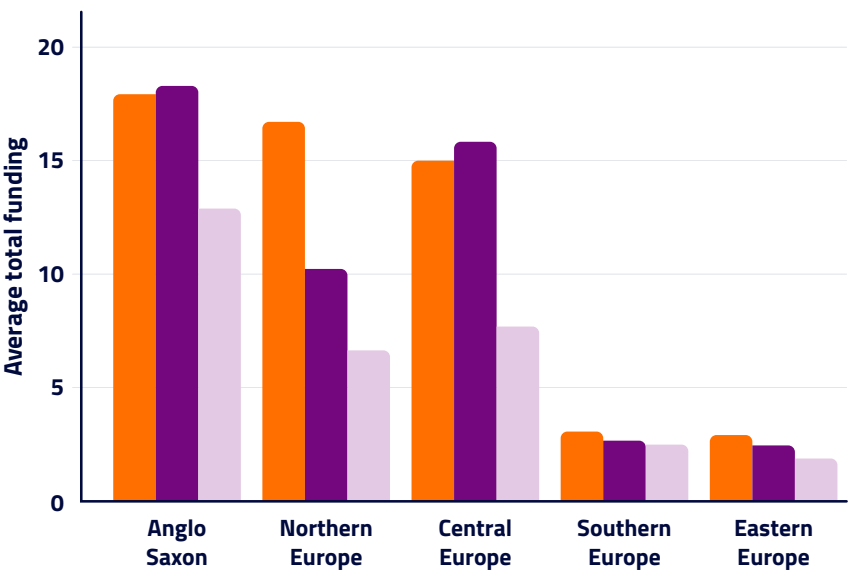| NUMBER OF ROUNDS	Coefficient	Standard error
Women founding team	0.30 ***	0.10
REGIONS		
Central Europe	-0.79 ***	0.10
Eastern Europe	-1.15 ***	0.15
Northern Europe	-0.55 ***	0.13
Southern Europe	-0.32 ***	0.13
TECHNOLOGIES		
Blockchain	0.25	0.22
Hardware	0.40 ***	0.10
Mobile app	0.30	0.22
Nanotech	1.20 ***	0.21
Quantum	0.51	0.36
Sensors	0.71 ***	0.15
Vision	-0.31 ***	0.11
Constant	2.95 ***	0.09

N=5,396

This analysis indicates that women Deep Tech startups receive more rounds of funding after considering the influence of regions and technologies. This is consistent with the graphs in the previous slide.

But this conclusion is wrong. The reason is that women in founding team is highly correlated with the number of founders.

This is why statistics relating only two variables (univariate) can be very misleading.

The next slide includes these additional variables and shows that women teams do not receive more rounds.

This regression evaluates the simultaneous influence of the presence of women in the founding team, regions, and technologies on the number of rounds of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Number of rounds and technologies for Deep Tech startups across gender teams

These graphs show the average total funding and number of rounds for Deep Tech startups that receive external funding.

Total funding is higher for women startups in sensors and mobile apps, two of the technologies with the least average funding.

In contrast, women startups receive more rounds of funding for most technologies.

Average total funding and technology

Startups   Women Startups
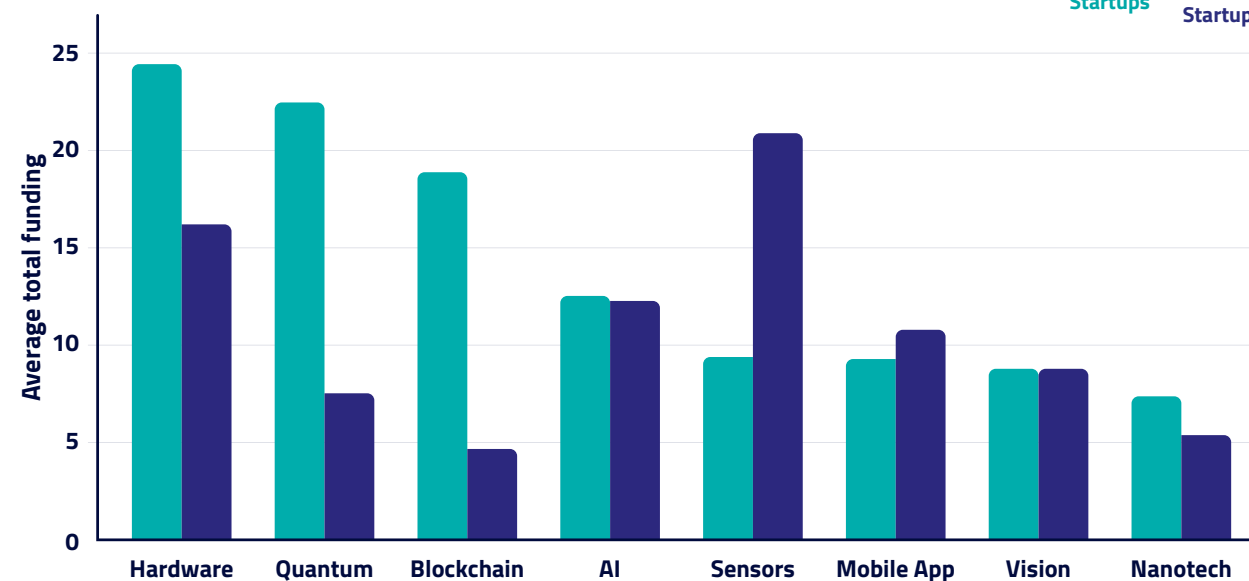
Average rounds and technology
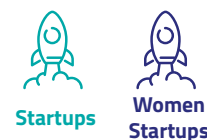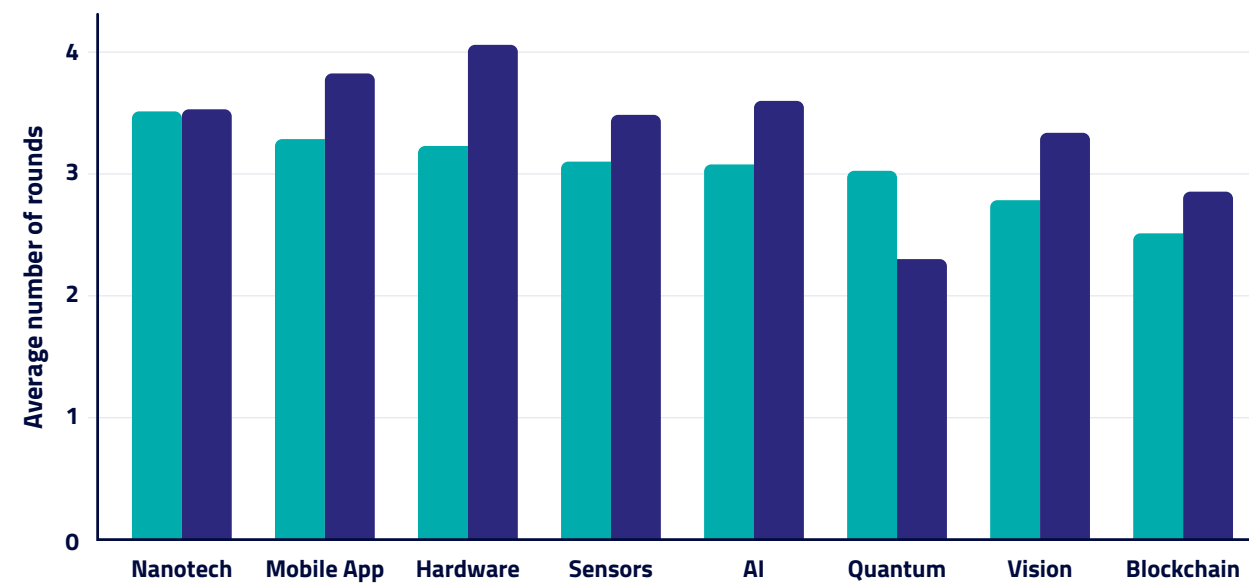
Average total funding is lower for startups with a women majority for most years

Companies founded in years 2011 and 2020 where the ones with most average total funding.

However, women founded startups received higher total funding than the average in 2013, 2014, 2016, and 2021.

Deep Tech startups with a majority of women founders typically receive lower average total funding.

Average total funding per year of founding

Startups   Women Startups   Majority Women Startups
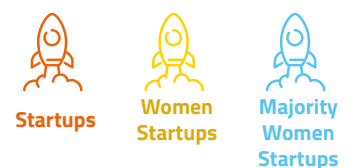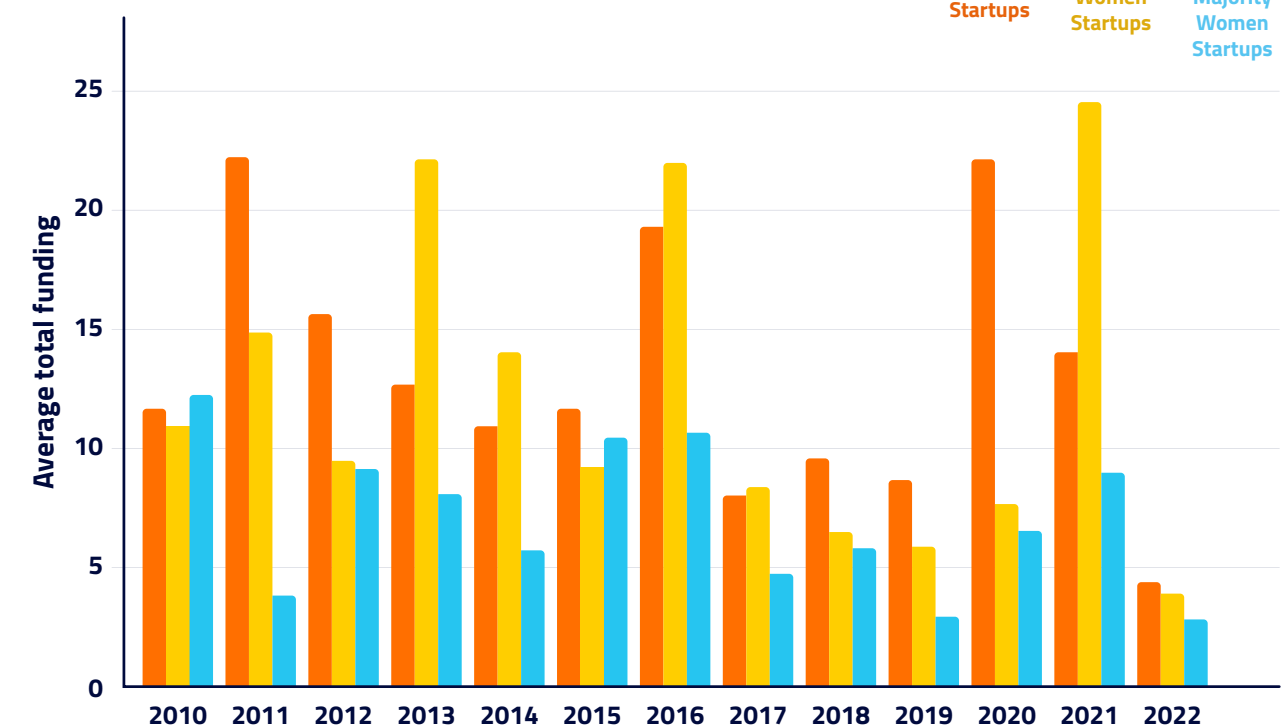
Women Deep Tech startups receive less total funding

FIRST VALUATION	Coefficient	Standard error
Women in founding team	-0.32 ***	0.10
Number of founders	0.47 ***	0.03
Age	0.09 ***	0.01
Number of patents	0.11 ***	0.01
REGIONS		
Central Europe	-0.42 ***	0.10
Eastern Europe	-1.48 ***	0.16
Northern Europe	-0.89 ***	0.13
Southern Europe	-1.54 ***	0.13
TECHNOLOGIES		
Blockchain	0.57 ***	0.23
Hardware	0.08	0.10
Mobile app	-0.44 ***	0.23
Nanotech	-0.25	0.19
Quantum	1.06 ***	0.35
Sensors	-0.41 ***	0.15
Vision	-0.34 ***	0.12
Constant	-0.23	0.16

N=3,113

Deep Tech startups with women in their founding team receive less total funding.

Deep Tech startups with larger founding teams, more patents, and older receive more funding.

Anglo-Saxon Deep Tech startups receive more total funding than startups in other European regions.

Artificial intelligence startups receive more total funding except for blockchain and quantum startups.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the total funding of Deep Tech startups. Total Funding is the logarithm of total funding to reduce the effect of large funding.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech teams receive less funding per rounds

Deep Tech startups with women in their founding team receive less funding per round.

The number of founders and the age of the startups is positively associated with the funding per round.

Non-Anglo-Saxon startups receive less funding regardless of the region.

Only blockchain and quantum startups receive more funding per round than artificial intelligence startups.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the funding per round of Deep Tech startups. Funding per round is the logarithm of funding per round to reduce the effect of large funding rounds.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

FUNDING PER ROUND	Coefficient	Standard error
Women in founding team	-0.33 ***	0.09
Number of founders	0.32 ***	0.03
Age	0.02 *	0.01
Number of patents	0.09 ***	0.01
REGIONS		
Central Europe	-0.21 ***	0.09
Eastern Europe	-1.11 ***	0.14
Northern Europe	-0.61 ***	0.11
Southern Europe	-1.40 ***	0.12
TECHNOLOGIES		
Blockchain	0.57 ***	0.21
Hardware	-0.01	0.09
Mobile app	-0.50 ***	0.21
Nanotech	-0.40 ***	0.17
Quantum	0.94 ***	0.31
Sensors	-0.55 ***	0.13
Vision	-0.24 ***	0.11
Constant	-0.95 ***	0.14

N=3,113

The size of the first funding round is smaller for women Deep Tech startups

Deep Tech startups with women in their founding team receive less funding in their first round.

The number of founders of the startup and number of patents are positively associated with the funding in the first round.

The age does not affect the amount of the first round amount.

Non-Anglo-Saxon startups receive less funding regardless of the region except for Central Europe.

Blockchain and quantum startups receive more funding in the first round than artificial intelligence startups. While mobile apps and sensors receive less.

FIRST FUNDING ROUND	Coefficient	Standard error
Women in founding team	-0.34 ***	0.10
Number of founders	0.17 ***	0.03
Age	0.00	0.01
Number of patents	0.06 ***	0.01
REGIONS		
Central Europe	-0.08	0.10
Eastern Europe	-0.97 ***	0.16
Northern Europe	-1.59 ***	0.13
Southern Europe	-1.25 ***	0.13
TECHNOLOGIES		
Blockchain	0.78 ***	0.22
Hardware	-0.10	0.10
Mobile app	-0.52 **	0.23
Nanotech	-0.31	0.20
Quantum	0.74 **	0.36
Sensors	-0.52 ***	0.15
Vision	-0.13	0.12
Constant	-0.92 ***	0.16

N=3,400

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the first funding of Deep Tech startups. Size of first round is log.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech startups are more likely to receive their first funding from public sources

PUBLIC FIRST FUNDING ROUND	Coefficient	Standard error
Women in founding team	0.36 ***	0.10
Number of founders	-0.18 ***	0.03
Age	-0.04 **	0.01
Number of patents	0.01	0.01
REGIONS		
Central Europe	0.62 ***	0.10
Eastern Europe	0.23	0.16
Northern Europe	0.60 ***	0.13
Southern Europe	0.97 ***	0.13
TECHNOLOGIES		
Blockchain	-0.78 ***	0.22
Hardware	0.38 ***	0.10
Mobile app	0.68 ***	0.23
Nanotech	0.44 ***	0.20
Quantum	0.01	0.36
Sensors	0.45 ***	0.15
Vision	0.22 ***	0.12
Constant	-1.40 ***	0.16

N=3,400

Analysing the source of the first funding of a company and coding "Grant" and "Support Program" as public funding, we find that:

Women founding teams are more likely to receive public funding.

Larger founding teams are less likely to receive public funding.

Younger startups are more likely to receive public funding.

Public funding is more likely to be the first source of funds in Central Europe, Northern Europe, and Southern Europe compared to the Anglo-Saxon region.

Public funding is more likely to go to hardware, mobile apps, sensors, and vision than artificial intelligence. While it is less likely to go to blockchain.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on whether the first funding of Deep Tech startups is public.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Characteristics of investors in women Deep Tech startups

Women Deep Tech startups are more likely to have government, non-profit, and incubators as investors

The likelihood of having government funding, incubators and similar, and non-profit funding increases with women in the founding team.

Other types of investors—universities, angels and similar, venture capital and similar, and corporate— are as likely to invest in any type of gender-mix team.

Type of investor (coefficients)	University	Government	Non-profit	Incubator	Early stage	Venture Capital	Corporate
Women in founder team	-0.91	0.24 **	0.25 *	0.31 ***	-0.2	-0.11	-0.12
Number of founders	0.22 ***	0.08 **	0.09 *	0.05 *	0.33 ***	0.39 ***	0.31 ***
Age	-0.07 ***	0.12 ***	-0.07 **	-0.08 **	0.04 **	0.03 **	0.07 ***
REGIONS							
Central Europe	-0.42 ***	0.37 ***	-0.40 ***	-0.00	-0.56 ***	-0.52 ***	-0.12
Eastern Europe	-2.50 ***	-0.16	-0.50 **	-0.34 *	-0.69 ***	-0.48 ***	-0.46 ***
Northern Europe	-1.03 ***	0.95 ***	-1.36 **	-0.09	-0.29 ***	-0.66 ***	-0.44 ***
Southern Europe	-0.16	1.27 ***	-0.04 ***	0.43 ***	-0.64 ***	-1.29 ***	-0.29 **
TECHNOLOGIES							
Blockchain	-1.99 ***	-0.33	-0.98 **	-0.64 ***	-0.49 **	0.73 ***	1.03 ***
Hardware	0.72 ***	0.74 ***	0.28 **	0.02	-0.11	-0.11	0.00
Mobile app	-0.70	-0.38	-0.02	0.38 *	0.02	-0.41 **	-0.03
Nanotech	1.36 ***	1.16 ***	0.64 **	-0.25	-0.31	-0.29	-0.25
Quantum	1.36 ***	1.24 ***	0.97 ***	-0.61 **	-0.08	0.69	0.16
Sensors	0.36 **	0.41 ***	0.13	0.19 *	0.10	-0.00	0.16
Vision	0.13	0.27 *	0.19	-0.11	-0.35 ***	-0.27 **	-0.01
Constant	-1.82 ***	-2.99 ***	-1.73 ***	0.71 ***	-1.57 ***	0.55 ***	-0.04 ***

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Most funding rounds to Deep Tech startups come from grants and seed

Most rounds that startups receive are grants and seeds (angel and seed) followed by early VC rounds (series A and B).

Startups receive other types of financing not included here such as debt, convertible, private placements, goods for equity, etc. These are small numbers of rounds.

Of the 7,045 startups with gender information, 212 experience an exit (IPO, merger, or acquisition), with 27 being a women-founded startup (12.7%).

Types of rounds
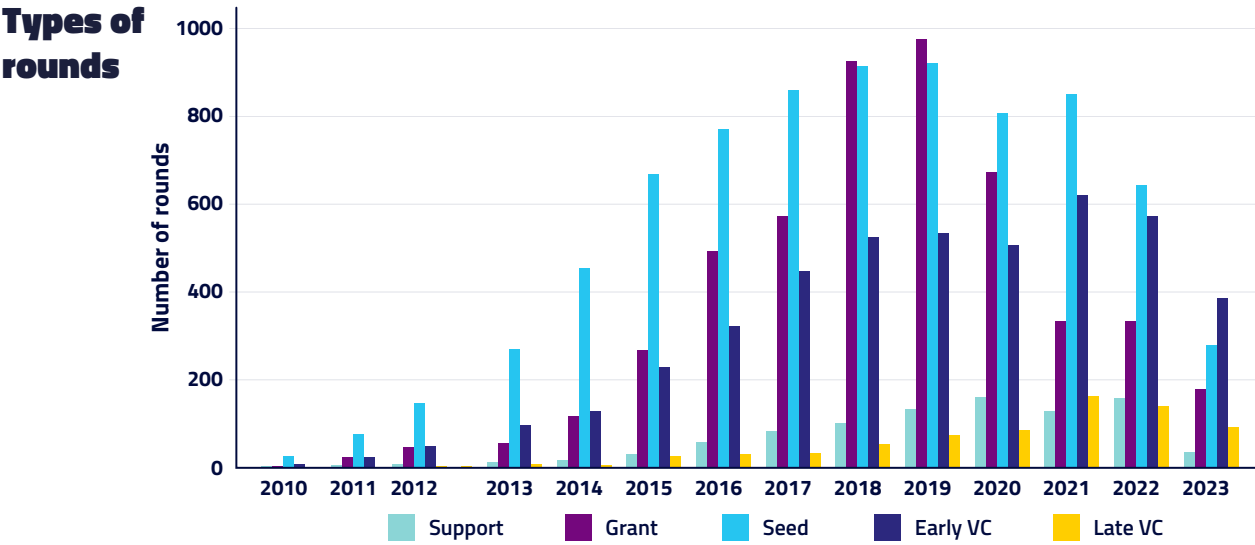
The percentage of women Deep Tech startups that receive early and late VC is lower than grants and seed, but those that receive funding are not different

The percentage of women Deep Tech startups in each type of round is between 16% and 11% for late VC rounds. The amount of money received in each round is larger for men-only startups except for early VC rounds, however the means are not significantly different.

(in millions of €)	Support Program	Grant	Seed	Early VC	Late VC
Percentage of women startups	16%	16%	15%	13%	11%
MEAN					
Amount of funding for women startups	€0.07	€1.01	€1.35	€12.23	€49.35
Amount of funding for men-only startups	€0.16	€1.86	€1.75	€10.86	€63.58
MEDIAN					
Amount of funding for women startups	€0.05	€0.08	€0.65	€5.00	€14.00
Amount of funding for men-only startups	€0.05	€0.15	€0.70	€5.00	€21.00
Number of rounds	917	4,985	7,649	4,419	700

Women Deep Tech startups are more likely to receive grants but less likely to receive early and late VC

Women Deep Tech startups are more likely to receive grants.

However, they are less likely to receive seed and early VC.

Larger founding teams are more likely to get early and late VC. While patents is associated with lower seed but higher early and late VC.

Startups in the Anglo-Saxon region is less likely to give grants, but more likely to provide early and late VC funding than Eastern Europe, Northern Europe, and Southern Europe.

Type of funding (coefficients)	Grant	Seed	Early VC	Late VC
Women in founding team	0.570 ***	-0.026 *	-0.028 **	-0.006
Number of founders	-0.003 *	0.001	0.045 ***	0.021 ***
Age	-0.023 ***	-0.06 ***	0.017 ***	0.006 ***
Number of patents	-0.001	-0.007 ***	0.003 ***	0.005 ***
REGIONS				
Central Europe	0.059 ***	-0.071 ***	0.018	0.011 ***
Eastern Europe	0.038 *	0.097 ***	-0.080 **	-0.016
Northern Europe	0.093 ***	-0.019	-0.033 **	-0.006 ***
Southern Europe	0.179 ***	-0.084 ***	-0.085 ***	-0.024 ***
TECHNOLOGIES				
Blockchain	-0.073 ***	0.040	0.025	0.005 ***
Hardware	0.090 ***	-0.096 ***	-0.009	0.008 ***
Mobile app	0.095 ***	-0.061 *	-0.028	0.008 ***
Nanotech	0.223 ***	-0.170 ***	-0.053 **	-0.004 ***
Quantum	0.108 **	-0.093 *	-0.005	-0.029
Sensors	0.051 ***	-0.053 ***	-0.015	-0.006 ***
Vision	0.057 ***	-0.021	-0.031 *	-0.000 ***
Constant	0.168 ***	0.718 ***	-0.099 ***	-0.044 ***

05

Valuation characteristics of Women in Deep Tech startups

Total valuation of Deep Tech startups and the percentage of this funding going to women Deep Tech startups

The percentage of valuation going to women Deep Tech startups has been steadily increasing, reaching 24% in 2022. However, the prior six years (2018-2021), the average has been at 16% comparable to the 17.4% of women founded startups.
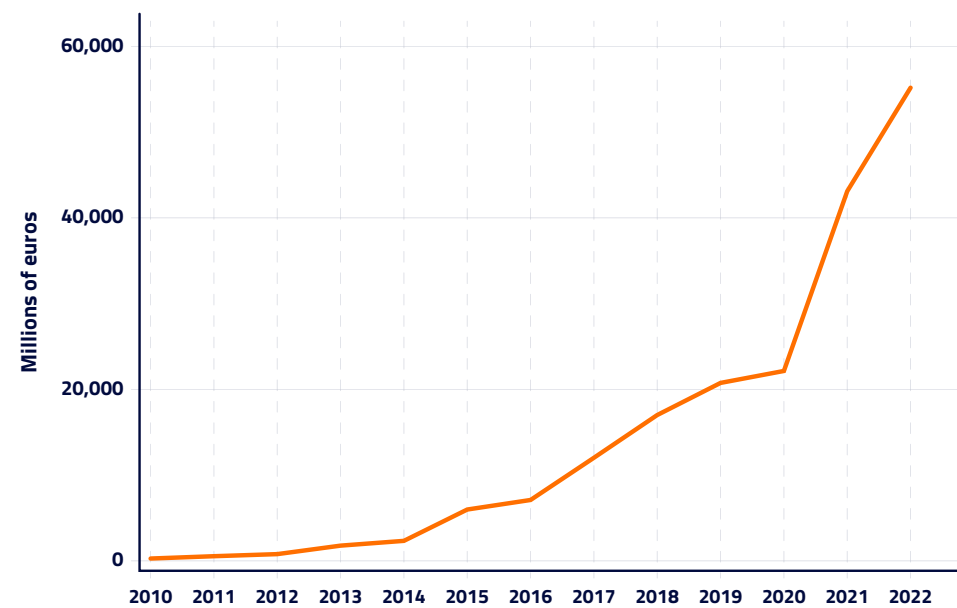
Total valuation

Percentage of valuation to women founded startups
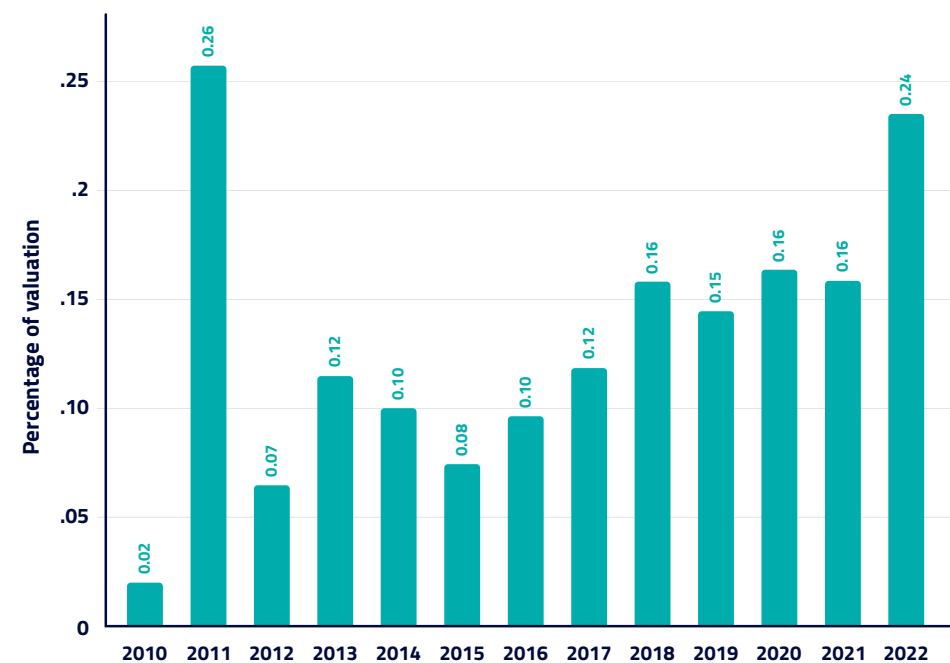
Women Deep Tech startups share of valuation is highest in Northern Europe and the Anglo-Saxon Region

The Central Europe region has the highest total valuation followed by Anglo Saxon. However, Northern Europe has a 23% valuation going to women founded startups.

Total valuation over time per region

Legend:
— Anglo Saxon   — Central Europe   — Eartern Europe
— Northern Europe   — Southern Europe
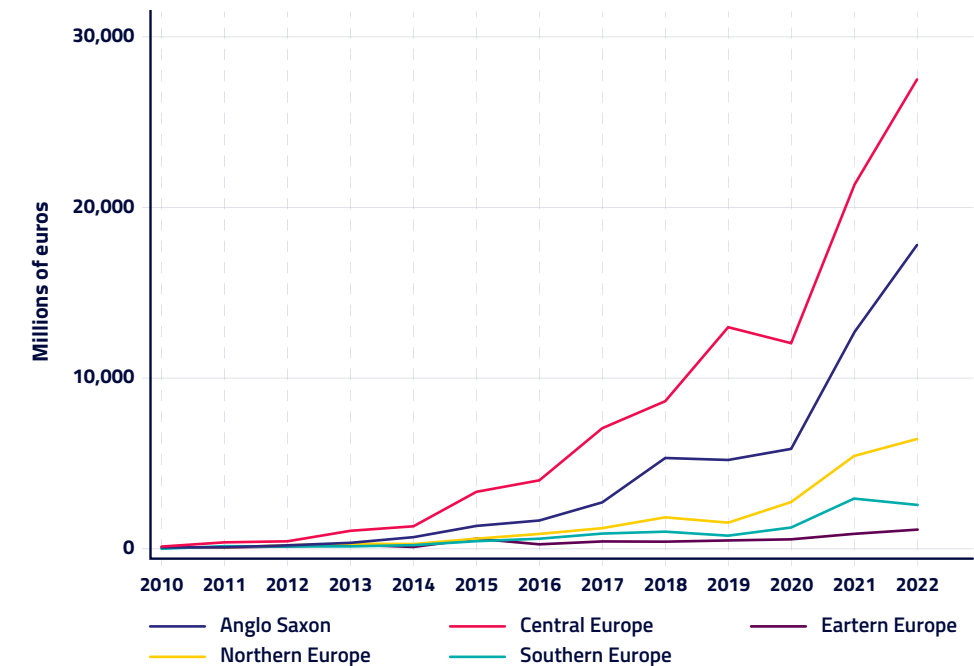
Percentage of valuation to women founded startups per region
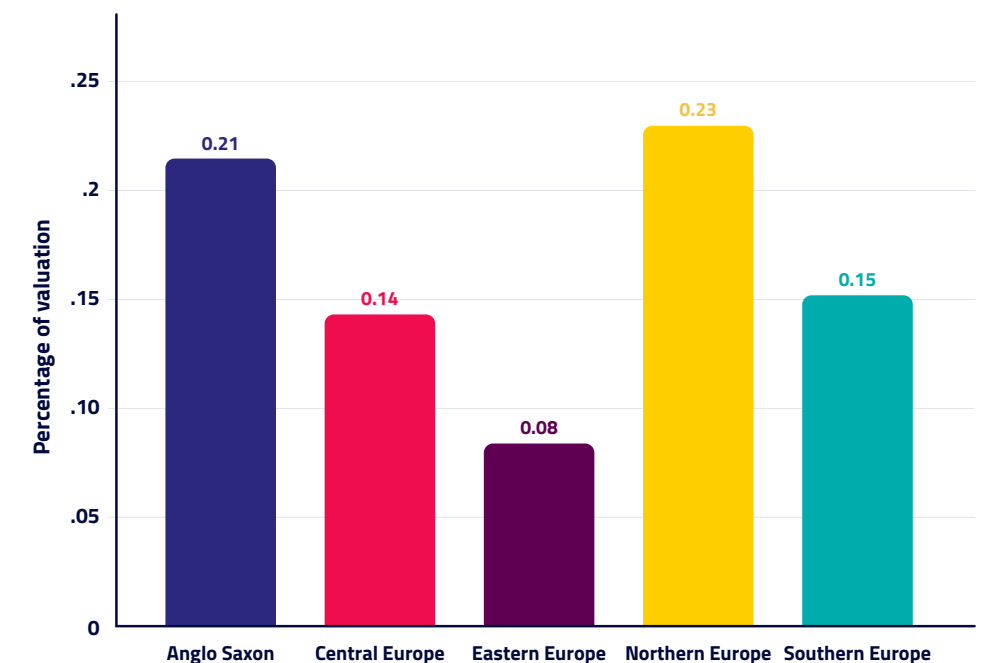
The average valuation of Deep Tech startups has been increasing

The average valuation of the sample of Deep Tech startups has been increasing significantly over time reaching an average valuation of €92.3 million in 2023.

This increase is associated with at least three factors.

- First, less successful startups do not get additional funding and are not valued in later years. Thus, only successful startups remain in the sample.
- Second, the sample includes companies founded starting in 2010. It is expected that the valuation of these companies will increase as they age.
- Third, there is an increase in the value of Deep Tech as perceived by investors.

Average valuation over time
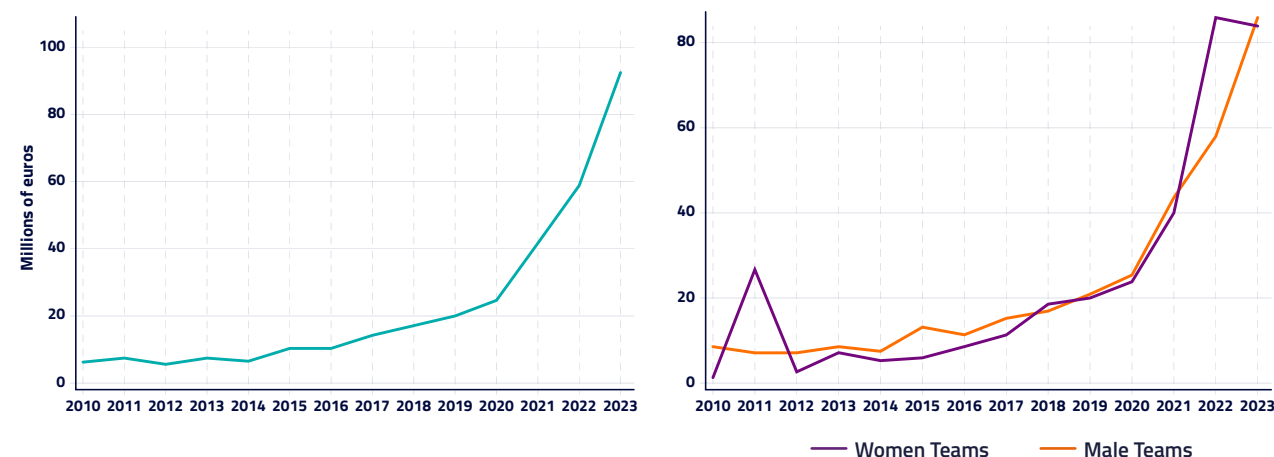
Women Deep Tech startups are about 15% of the startups that receive a first valuation

The average first valuation is €13.3 million and the median is €4.6 million.

25% have a valuation less than €1.2 million and 75% have a valuation less than €11.3 million.

The percentage of women Deep Tech startups in each of the first valuation brackets is about 13%, below the 17.4% of women Deep Tech startups.

Startups and first valuation
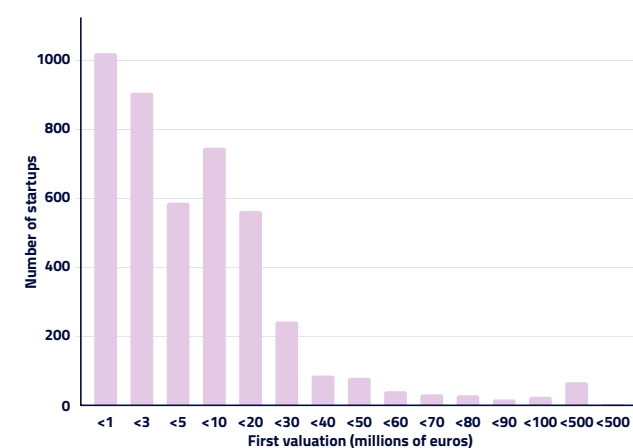
Women founded startups and first valuation

First valuation of Deep Tech startups is not significantly different across gender teams in most regions and technologies

The first valuation is higher in Central Europe and the Anglo-Saxon region, but there is no significant difference between women Deep Tech startups and men-only startups.

Women Blockchain startups receive significantly less financing, while women Nanotech startups receive significantly more.

First valuation and regions
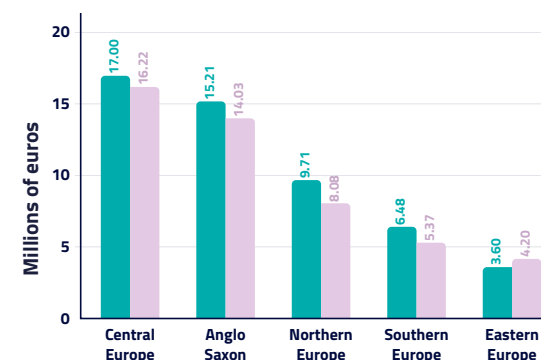
First valuation and technologies
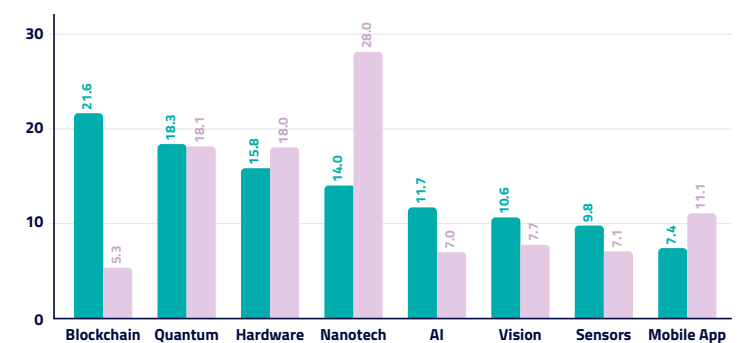
Women Deep Tech startups receive a lower first available valuation

FIRST VALUATION	Coefficient	Standard error
Women in founding team	-0.23 ***	0.07
Number of founders	0.18 ***	0.02
Age	0.31 ***	0.01
Number of patents	0.11 ***	0.01
REGIONS		
Central Europe	0.21 ***	0.07
Eastern Europe	-0.72 ***	0.11
Northern Europe	-0.39 ***	0.09
Southern Europe	-0.57 ***	0.10
TECHNOLOGIES		
Blockchain	0.62 ***	0.16
Hardware	0.09	0.07
Mobile app	0.17	0.17
Nanotech	0.04	0.16
Quantum	0.83 ***	0.26
Sensors	-0.19 **	0.09
Vision	-0.06	0.09
Constant	0.27	0.08
		N=2,536

Women Deep Tech startups get a lower first available valuation. The first valuation increases with number of founders and the age of the startup at the time of this first valuation.

The average first valuation is €13 million.

Eastern, Northern, and Southern European Deep Tech startups receive a lower first valuation.

Blockchain and hardware receive higher valuations than artificial intelligence.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, regions, and technologies on the first valuation of startups. Log of first valuation is used to reduce the effect of large valuations and patents is windsorized at 10.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Last valuation of women Deep Tech startups is not significantly different across gender teams in most regions and technologies

The last valuation is higher in Central Europe and the Anglo-Saxon region, but there is no significant difference between women Deep Tech startups and male-only startups.

Women Blockchain startups receive significantly less financing, while women Nanotech startups receive significantly more.

Last valuation and regions

Last valuation and technologies

Startups Women Startups
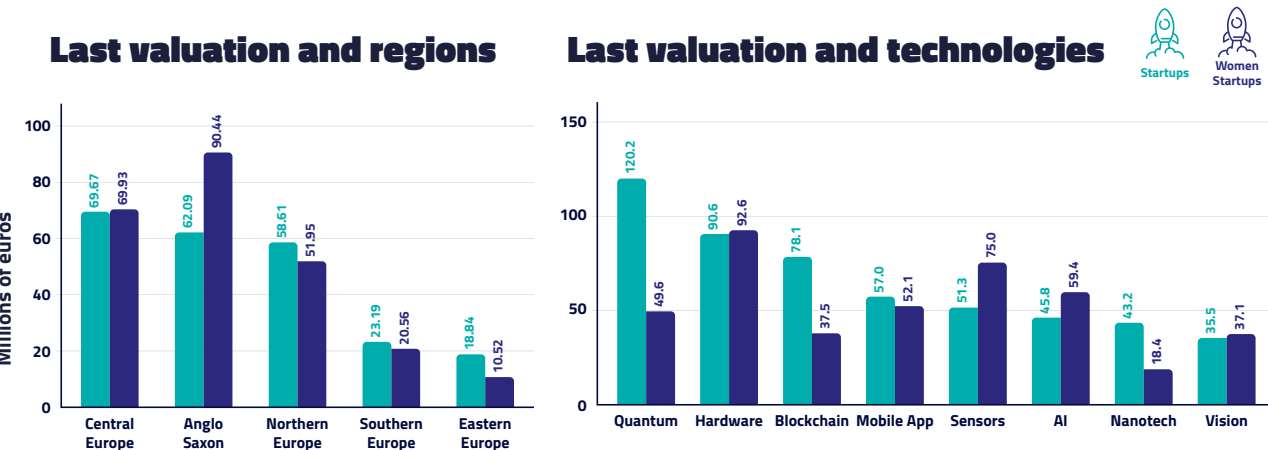
The last available valuation is not different for women Deep Tech startup

LAST VALUATION	Coefficient	Standard error
Women in founding team	-0.15	0.09
Number of founders	0.26 ***	0.03
Age	0.24 ***	0.01
Number of patents	0.12 ***	0.01
REGIONS		
Central Europe	0.11	0.09
Eastern Europe	-1.08 ***	0.15
Northern Europe	-0.78 ***	0.12
Southern Europe	-0.86 ***	0.13
TECHNOLOGIES		
Blockchain	0.73 ***	0.24
Hardware	0.11	0.10
Mobile app	0.16	0.23
Nanotech	-0.20	0.22
Quantum	1.18 ***	0.34
Sensors	-0.20 ***	0.12
Vision	-0.23 *	0.12
Constant	1.14 ***	0.12

Women Deep Tech startups do not have a significantly different last available valuation.

All regions except Central Europe have a lower last valuation compared to startups in the Anglo-Saxon region.

Blockchain and quantum startups have a higher last valuation compared to artificial intelligence. While sensors and vision have lower valuation.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, patents, regions, and technologies on the last valuation of startups available. Last valuation is the logarithm of the last valuation to reduce the effect of large valuations. Patents have been windsorized at 10.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

The increase in valuation is no different for women Deep Tech startups but it is for solo Deep Tech startups

Women startups have a higher increase in valuation from the first to the last available valuation. However, this difference is not statistically significant.

Similarly, teams with a majority of women have a similar increase in valuation to other startups.

Only solo startups have an average lower increase in valuation.

Increase in valuation and gender

Increase in valuation and solos
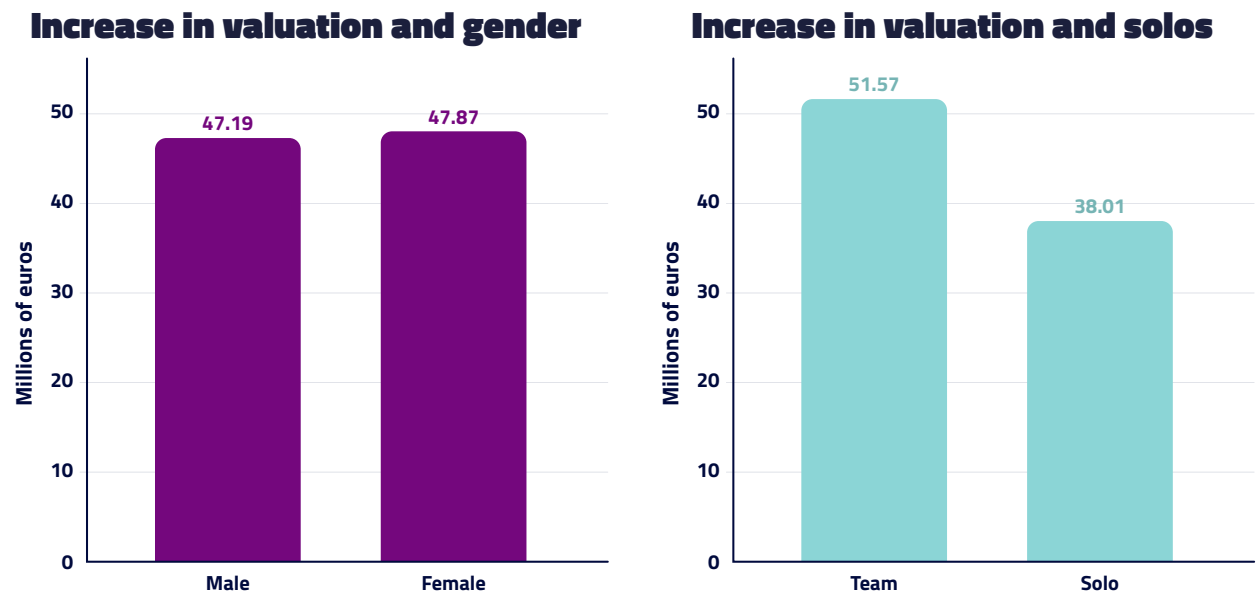
Most Deep Tech startups that have at least two valuations see their valuation increase

For those companies for which there are at least two valuation points, 89% see an increase in value.

Women Deep Tech startups vary across the range of increases of value at around the average of women Deep Tech startups.

Startups and increase in valuation
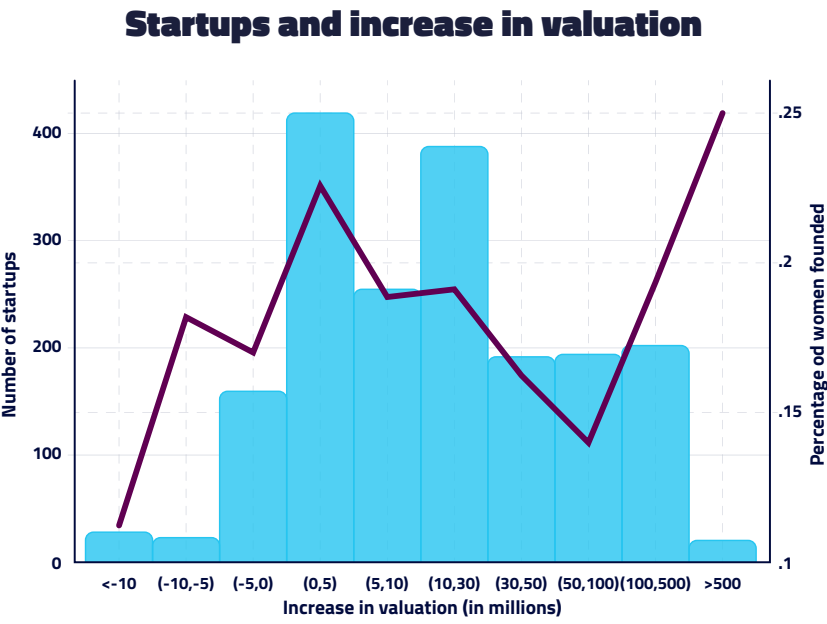
Women Deep Tech startups' valuation increase does not differ across gender teams

There is no significant difference in the average increase in valuation across regions and technologies for women Deep Tech startups and men-only Deep Tech startups. Even among those that see a change in valuation and those that increase their value, gender does not make a difference in this change.

Increase in valuation and regions

Increase in valuation and technologies

Startups | Women Startups
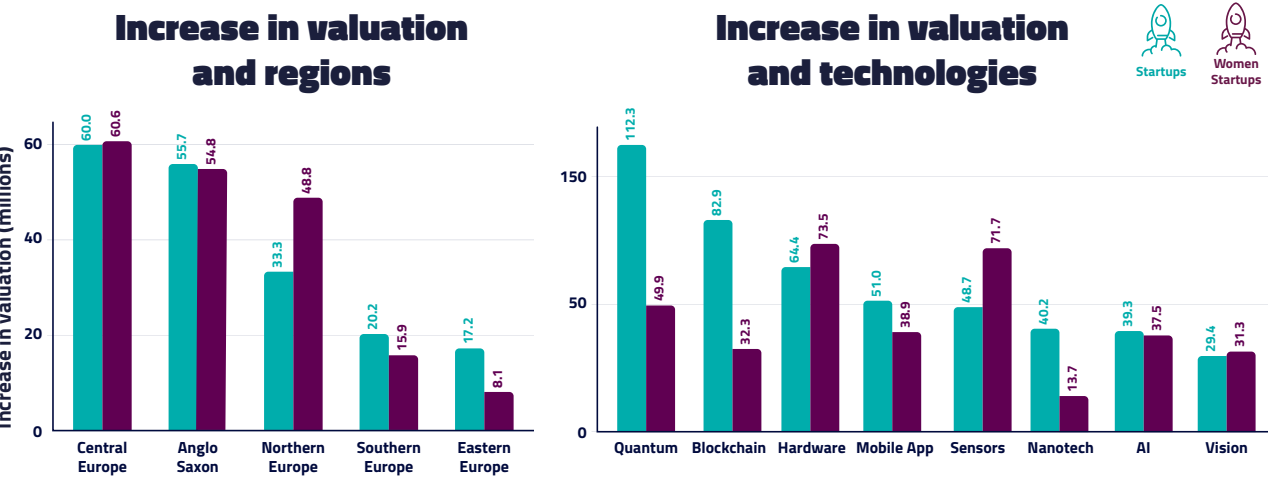
Increase in valuation is no different across gender teams

This analysis shows the increase in valuation and the increase in valuation per year between the first and last available valuation.

Women in founding team is not significant, indicating that the increase in value in Deep Tech startups is not associated with the gender composition of the founding team.

Number of founders and number of patents are associated with a larger increase in valuation per year.

Eastern, Northern, and Southern Deep Tech startups see lower increase in valuation than the Anglo-Saxon region.

Hardware and quantum startups see higher valuation increase.

Coefficient	INCREASE IN VALUATION	INCREASE IN VALUATION PER YEAR
Women in founding team	-2.08	-0.38
Number of founders	3.57 ***	-7.69 ***
Number of rounds	15.01 ***	-0.69
Number of patents	10.54 ***	2.78 ***
REGIONS		
Central Europe	-0.27	-3.81
Eastern Europe	-27.10 **	-13.71 **
Northern Europe	-25.43 **	-11.94 **
Southern Europe	-26.50 ***	-11.31 **
TECHNOLOGIES		
Blockchain	55.06 *	22.24 *
Hardware	8.67	10.68 **
Mobile app	6.80	-0.25
Nanotech	-23.02	-6.68
Quantum	53.32	29.91 **
Sensors	0.67	1.49
Vision	-16.18	-5.25
Constant	-11.39	1.44

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, number of rounds, patents, regions, and technologies on the increase in valuation. Patents have been windsorized at 10.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Deep Tech startups reaching a valuation above €20 million are less likely to be women founded

Women founding teams receive lower valuation over the various funding rounds and are less likely to reach a valuation of at least €20 million.

Anglo-Saxon and Central Europe regions have significantly larger valuations and are more likely to reach valuations over €20 million.

Blockchain and quantum startups also have higher valuations and are more likely to reach a valuation of €20 million. While sensors and vision have lower valuations.

| Coefficient	VALUATION	VALUE OVER €20 MIILLION
Women in founding team	-0.18 **	-0.04 ***
Number of founders	0.22 ***	0.04 ***
Age	0.34 ***	0.08 ***
Number of patents	0.11 ***	0.03 ***
REGIONS		
Central Europe	0.12 *	0.01
Eastern Europe	-0.91 ***	-0.17 ***
Northern Europe	-0.50 ***	-0.12 ***
Southern Europe	-0.74 ***	-0.12 ***
TECHNOLOGIES		
Blockchain	0.64 ***	0.15 ***
Hardware	0.04	0.00
Mobile app	0.02	0.02
Nanotech	-0.21	-0.05
Quantum	0.85 ***	0.17 ***
Sensors	-0.18 **	-0.05 **
Vision	-0.18 **	-0.04 *
Constant	0.47 ***	-0.07 ***

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age, patents, regions, and technologies on all the valuations of startups available in the database as well as the likelihood of a startup reaching a €20 million valuation. Valuation is the logarithm of valuation to reduce the effect of large valuations. Patents have been windsorized at 10.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

The Role of Women in Deep Tech startups

Testimonials

Diversity of paths for women to found Deep Tech startups

The path of women to founding a Deep Tech startup is diverse. This diversity of paths is typical of entrepreneurs:

Moving from a research centre or university to found a startup based on the work done at the research centre. These founders are "pushed" to be entrepreneurs rather than deliberately choose it.

- Serial entrepreneurs who have been part of an entrepreneurial ecosystem for a significant period and identify opportunities through their exploration efforts.
- Corporate managers that spot an opportunity and decide to pursue it. In these cases, they often have already been involved in a startup project at some point in their careers and/or they have been involved in innovation and new product introduction in corporations.

- The founding team typically happens without a gender structure in mind. Serial women entrepreneurs have teamed up with women as well as men. They often involve mixed teams brought together because of their interests, complementarities, and networks.
- Management teams (and their gender composition) change as the startup pivots to different business models and/or some founders prove not to be entrepreneurial.

Women Deep Tech founders have diverse backgrounds but one common thread: they are highly educated and motivated to start a business

- Women Deep Tech founders are typically highly educated, holding at least one master degree and often several master degrees or a doctoral degree.
- Women Deep Tech founders do not necessarily have a technology training, although many of them do. Those that do not have a tech background mostly have a business background and have either corporate experience or experience supporting innovation (incubators, venture builders, …). However, they all enjoy technology.
- While some of them become entrepreneurs rather than choose it, most of them consciously choose to start a company instead of a corporate job after having experienced both.
- Regardless of their path to entrepreneurship, they are all driven by the objective of creating, moving things forward, and being able to change the world in some way—this is the most important motivator every morning. They are driven by passion, drive, and doing something valuable to improve the world. Money is not a primary driver but an outcome of their dream, it is less than entrepreneurs would make in the corporate world. This motivational structure is typical of entrepreneurs.

Testimonials

The following pages reproduce **comments** and **ideas** cited during the interviews that illustrate either common experiences across various entrepreneurs or unique experiences that were deemed to be of interest.

Interviews capture the **experiences** of each entrepreneur interviewed and are intended to illustrate and enrich the quantitative study. They are not to be read as conclusions about the state of women entrepreneurs in deep tech.

The latter parts of the interviews asked for **opinions** regarding issues such as the reasons for the low presence of women entrepreneurs in deep tech; they are to be read as opinions of the interviewees and not as conclusions or empirical evidence. They reflect the perceptions of interviewees.

The comments and ideas have been kept **anonymous** to respect the openness of interviews and have been edited to summarize the experience of several interviewees or for clarity purposes. The text reflects the experiences and opinions of the entrepreneurs.

Women Deep Tech founders rely on grants and public funding to begin their entrepreneurial journey

- Some of them rely on grants and bootstrapping to have a company for life. While others rely to a larger extent on private investors—business angels and venture capital—to accelerate the growth of the startup with an exit, typically an acquisition, as the end point (so they can move to their next project!).
- Different countries offer different opportunities. For instance, France is an attractive country to start a company as it offers unemployment benefits that covers creating companies—so living expenses are covered, offers founders' grants, there are public funds that match investors' funds, and grants for breakthrough innovation.

Deep Tech startups typically experience steep learning curves with important pivots

Women founded Deep Tech startups experience many of the same challenges of any entrepreneurial venture:

- Pivot from the original application of the technology when the original idea proves not to be feasible. Typical of entrepreneurs, women founders are resourceful and look for new paths when the original one proves to be a dead end. They do not give up.
- Funding is often a challenge for women founded startups; they heavily rely on grants early on and struggle when the disbursement of the grants are delayed. This is typical of startups in general.
- However, women founders feel being side-lined when facing venture capital firms and often being tokens in VC conferences without translating into funding.
- Hiring is often a challenge in Deep Tech where people with a technical background are in high demand and large technology firms can offer more attractive packages.

Deep Tech startups require a delicate balance between technology and business

Women founded Deep Tech startups face the challenge of technology and business model design:

- Women Deep Tech startups combine startups that bring deep technology coming from research projects into the market with startups driven by market opportunities where deep tech is used to take advantage of the opportunity.
- An important challenge is motivation. Here a founding team rather than a solo helps, there are always challenges in different parts of the business and one can focus on solving them while the other one takes care of the rest.
- Deep Tech requires being good at business and at tech at the same time and managing both sides is crucial. It is not about accommodating customer demands, but about selling the product true to its objectives. It is being true to your beliefs, while listening to the market.

Women Deep Tech startups heavily rely on external organizations

Women Deep Tech startups rely on external organizations, much like other startups::

- In many cases, the origin of the startup is a research project at a university or research centre.
- During its growth, Deep Tech startups often rely on universities and research centres for specific development projects.
- Corporates play a multiplicity of roles in Deep Tech startups from simply clients of the company, to partners in go-to-market strategies, integrating the product in a larger bundle.
- Some women Deep Tech startups participate in incubation/venture client programs of large companies and co-work with them in developing the startup. However, typically they break away from the incubating partner as the speed and objectives diverge. Incubators are helpful both on the technology and the business side.
- Startups working with corporates face the challenge of the different "clock speeds" with corporates "taking years" to make progress.

Women in Deep Tech are gender conscious in their hiring decisions

- Co-founders usually split different parts of the business—commercial, technology, marketing, operations, finance, human resources—but they typically consult on all aspects. As it happens in typical startups, the roles are fluid, complementing each other and replacing each other through projects as these evolve.
- Women founders are conscious of gender diversity in their hiring divisions. In some cases, they achieve gender balance in the technology side, but often the gender balance comes from non-tech positions. This is because it is easier to find tech men in the networks and it is easier to bring them.
- Another reason is tech is a male dominated industry and has not changed much since the dot com. It is tough to be in this industry. Biases like in a pitch having investors look and ask the man co-founder even if it is the woman giving the pitch.
- Support from public sources is crucial, but they tend to over-emphasize training over providing resources.

The unresolved enigma—the scarcity of women in Deep Tech startups—A few words from women founders

The quantitative study confirms that women are underrepresented in Deep Tech startups. It also reveals certain biases that are also confirmed in this qualitative section of the study. Yet, the question that the quantitative part is unable to fully answer is the underlying reasons for the issue to address. The diversity of reasons put forward by interviwees reflect the complexity of the issue to address.

Society exposes women to challenges that do not require deep tech

- Entrepreneurs need to be passionate about the problem they are trying to solve and not the technology. It may be the case that women are exposed to challenges that do not require deep tech but can be addressed with business models that do not rely on deep tech.

Capital suppliers are biased against women entrepreneurs

- As the quantitative study indicates, there seems to be a bias towards lower valuations for women founded startups.
- Venture capital and technology is still very much dominated by white men that (un)consciously bias their decisions against women, a phenomenon known as glass ceiling. While there are many women working in tech, there are very few at the C level. Similarly, at the venture capital level, women are not at the core of the fund but rather running background aspects such as human resources or back office.

Social conventions typically lead women to taking care of family duties

- People tend to follow stereotypes.
- Women are expected to take the major role in educating and taking care of the kids as well as managing the household.
- Certain countries have weaker support systems to have a work-family life balance that allows for the demands of a startup. Countries with a worse family–work balance see fewer women in the entrepreneurial ecosystem.

Women are less likely to engage in STEM topics; although this trend seems to be reversing.

- Women are less likely to engage in STEM topics; although this trend seems to be reversing.

Lack of role models

- At young ages women are as good (and often better) than men in math and other STEM subjects, but there are not enough role models. Young people tend to think that they can do it because a role model did it. As a woman you look for role models and having a man as a role model is not your way of doing stuff.
- Society needs to show girls that they can be really good at coding and building products that can change the world.

Structure of the technology supply side

- When hiring on the technology side, it is easier to hire men. There are many more men in technology and easier to access through existing networks. This supply unbalance translates to Deep Tech founding teams.
- There is no reason for women not to be in Deep Tech looking at the academic performance of girls in high school.

APPENDIX

Analysis of Women in Deep Tech Startups for EU Countries

The percentage of women founders has been steadily increasing—EU countries

The percentage of women over total number of founders has been steadily increasing over time from about 7% of total founders in the early part of the decade to 14% in 2021 and 2022. This increase appears to happen across European regions.

Percentage of women founders over time
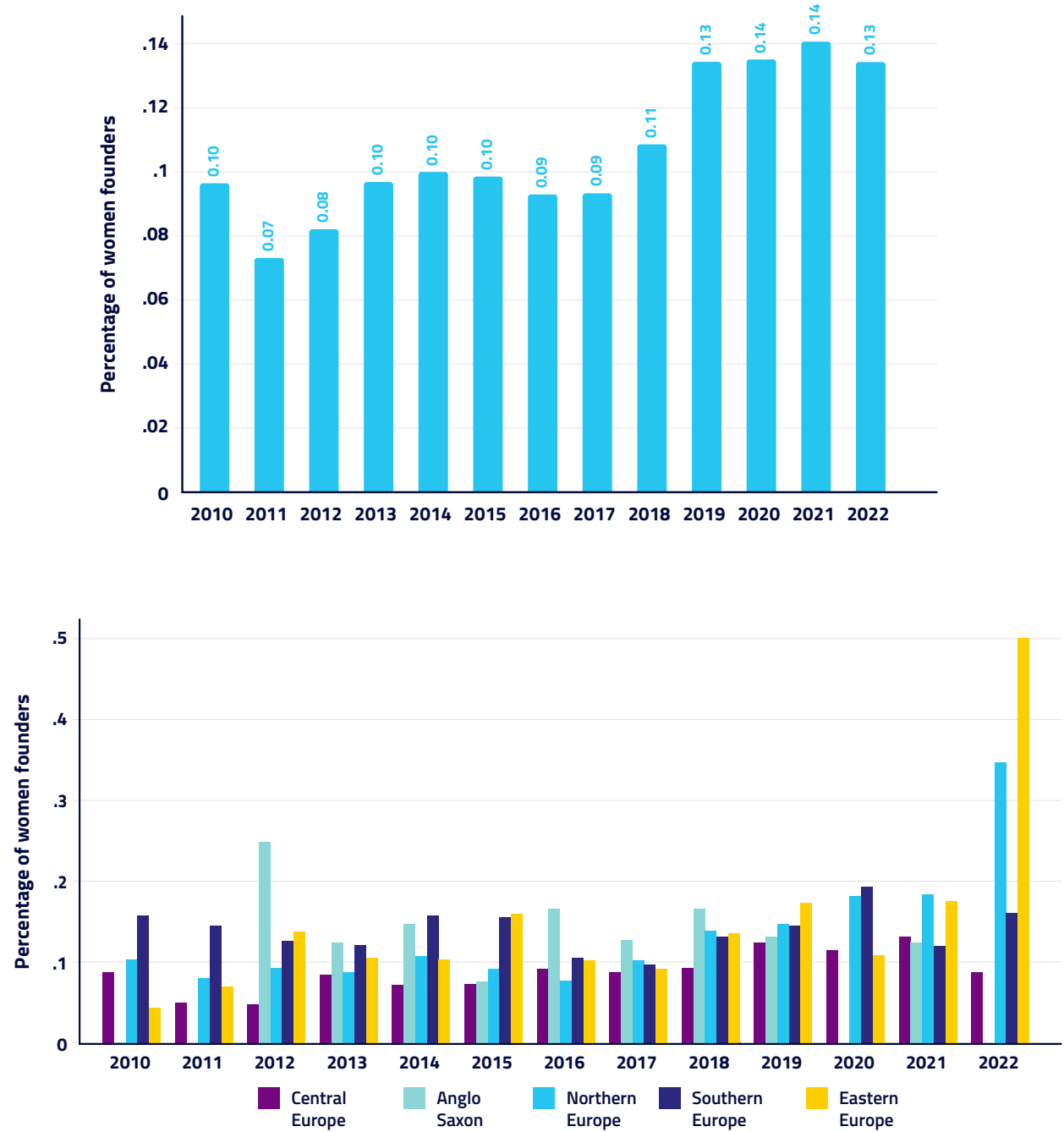
Deep Tech Startups Launched per EU Country

The country with the most Deep Tech startups launched between 2010 and 2022 is France with 2,616 (21.0%) followed by United Kingdom, Germany, and Spain.

Given the large number of countries and to provide an easier interpretation of the results, we have grouped countries into the following regions:

Eastern Europe: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia

Central Europe: Austria, Belgium, France, Germany, Luxembourg, Netherlands

Southern Europe: Cyprus, Greece, Italy, Malta, Portugal, Spain

Northern Europe: Denmark, Estonia, Finland, Latvia, Lithuania, Sweden

Anglo-Saxon: Ireland
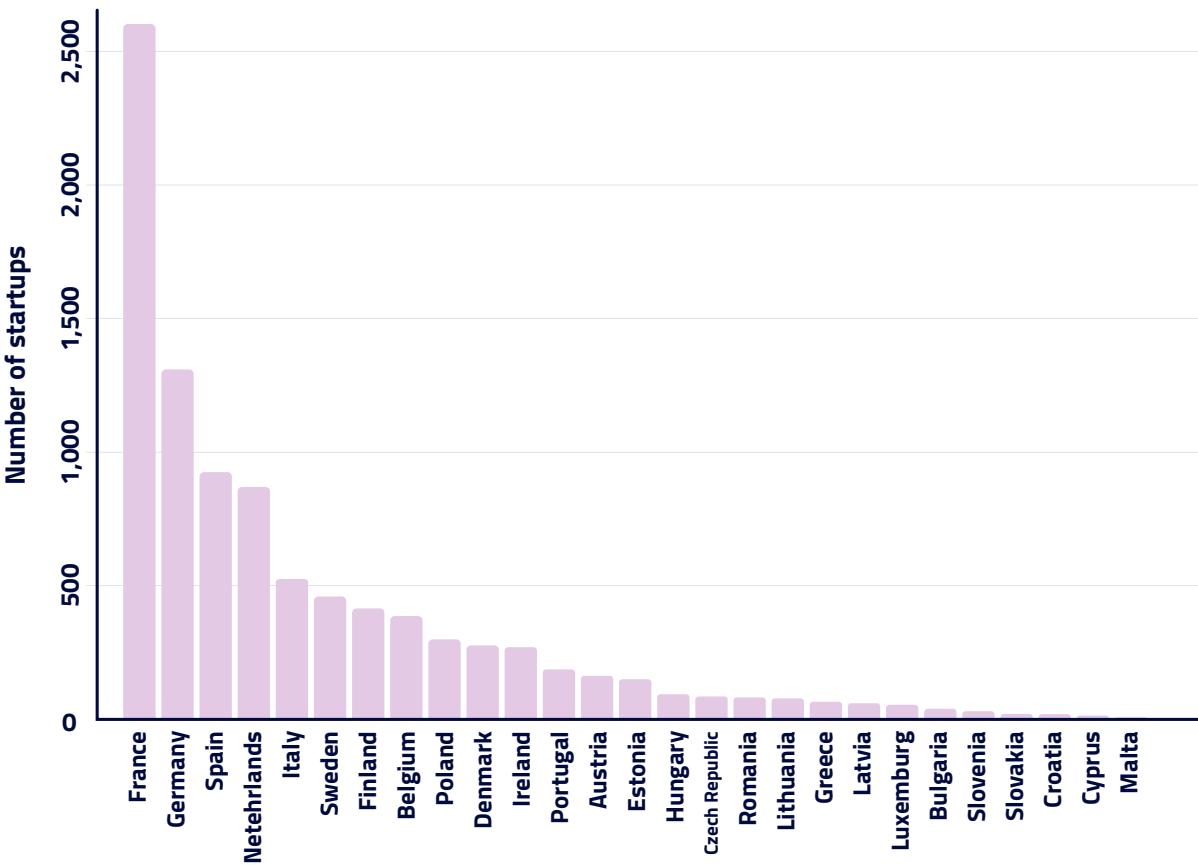
Women Deep Tech startups across regions —EU countries

Using the sample of startups with gender information on founders, Central Europe has created the most startups in the 2010-2022 period followed by the Northern Europe region.

The percentage of startups with women in their founding team is in the 18% range, with Southern Europe reaching almost 22% of women Deep Tech startups.

For startups founded by at least a woman, about 60% have a majority of women. When excluding solos, the percentage of teams with a majority of women varies from 30% to 42.4%.

Deep Tech startups launched per region

	Women Startups	Women Majority
Central Europe	15.2%	19.7%
Anglo Saxon	19.7%	63.6%
Northern Europe	19.5%	54.0%
Southern Europe	21.6%	68.1%
Eastern Europe	19.4%	57.9%

Percentage of Women founded Deep Tech startups per EU country

Using the sample of startups with gender information on founders, we find that most countries are in the 10% to 20%. The outliers are typically smaller countries with very few startups.
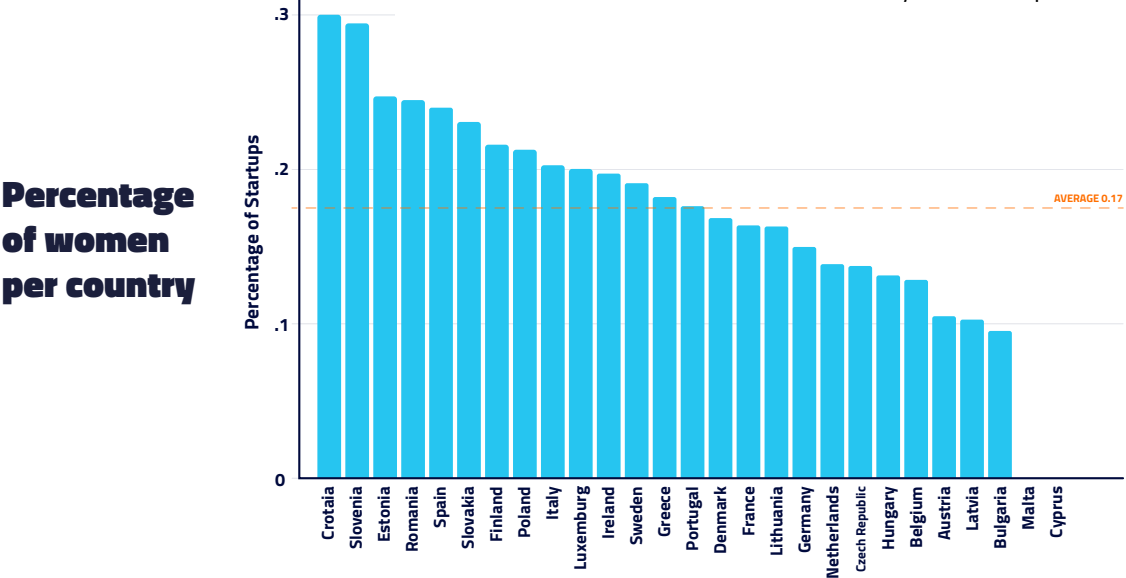
Women are less likely to found a Deep Tech startup alone —EU Countries

This regression evaluates the effect of women founders, regions, and technologies on the likelihood of being a solo founder. The Anglo-Saxon region and Artificial Intelligence are the references.

Women are less likely to found a startup on their own.

Central Europe and Northern Europe have fewer solo startups compared to the Anglo-Saxon region.

Sensors and vision startups have more solo founders than artificial intelligence..

For startups founded by at least a woman, about 60% have a majority of women. When excluding solos, the percentage of teams with a majority of women varies from 30% to 42.4%.

SOLO	Coefficient	Standard error
Woman	-0.95 ***	0.08
REGIONS		
Central Europe	-0.41 ***	0.08
Eastern Europe	0.25	0.12
Northern Europe	-0.40 *	0.10
Southern Europe	-0.25	0.10
TECHNOLOGIES		
Blockchain	-0.17	0.17
Hardware	0.09	0.08
Mobile app	0.06	0.18
Nanotech	0.17	0.17
Quantum	-0.44	0.31
Sensors	0.37 ***	0.09
Vision	0.25 **	0.09
Constant	0.17	0.08

N=5,385

A regression model considers simultaneously the influence of various variables on the dependent variable. In this case, it examines the influence on a startup being a solo startup (SOLO) of being a women founding team, the various regions, and the various technologies. After considering Regions and Technologies, having women in the founding team lower the likelihood of being a solo startup. *** Indicates significance at 1%, ** at 5%, and * at 10%.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women founded startups grow slower in terms of employee growth—EU countries

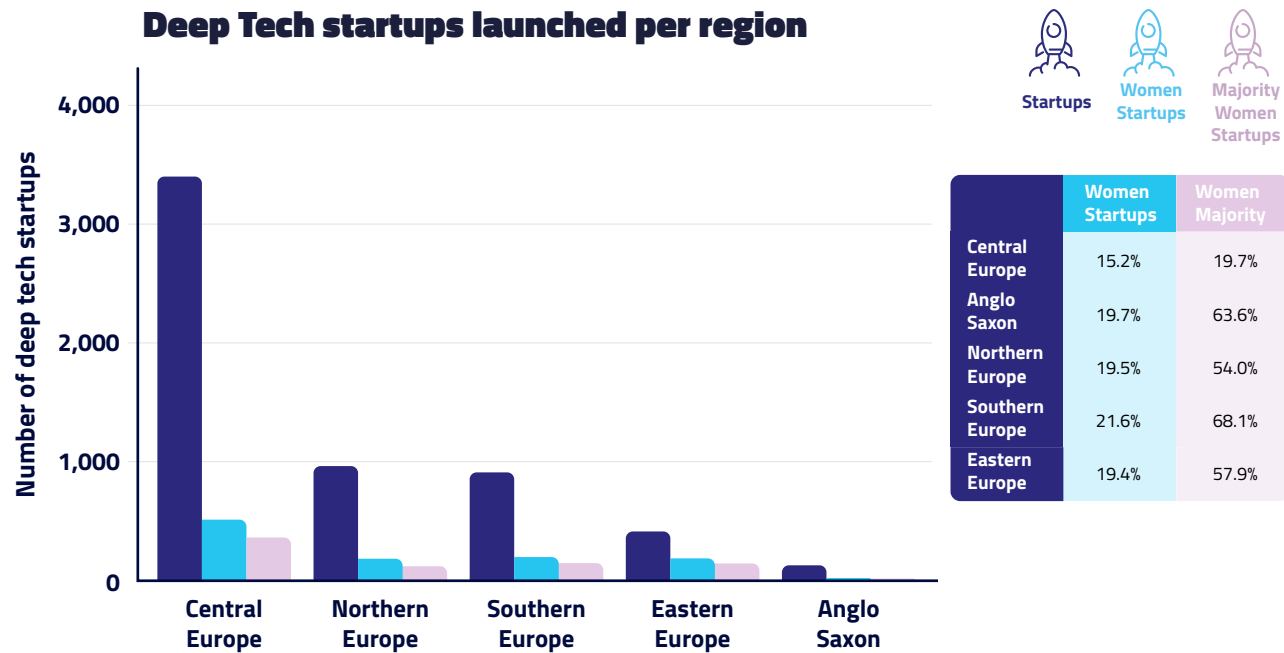| AVERAGE STARTUP GROWTH	Coefficient	Standard error
Number of founders	1.96 ***	0.26
Solo	0.39	0.58
Age	-0.15 **	0.07
Women team	-1.03 *	1.20
REGIONS		
Central Europe	0.79	0.57
Eastern Europe	0.02	0.90
Northern Europe	0.65	0.72
Southern Europe	-0.58	0.77
TECHNOLOGIES		
Blockchain	0.88	1.29
Hardware	0.71	0.57
Mobile app	-0.68	1.38
Nanotech	-1.45	1.28
Quantum	2.29	2.17
Sensors	-0.64	0.63
Vision	-0.61	0.65
Constant	1.29	1.00

N=3,635

The average yearly growth of a Deep Tech startup is 3.52 employees.

The presence of women in the founding team has a marginal effect on employee growth.

However, larger founding teams are associated with more growth.

This regression evaluates the simultaneous influence of number of founders in the founding team, solo startups, age of the startup, the presence of women in the founding team, regions, and technologies on the average employee growth of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Funding to women Deep Tech startups is larger in Central Europe

Women Deep Tech startups have seen their funding increase over time as successful Deep Tech startups have been growing. Women Deep Tech startup funding is dominated by Central Europe and the Anglo-Saxon regions followed by Northern Europe.
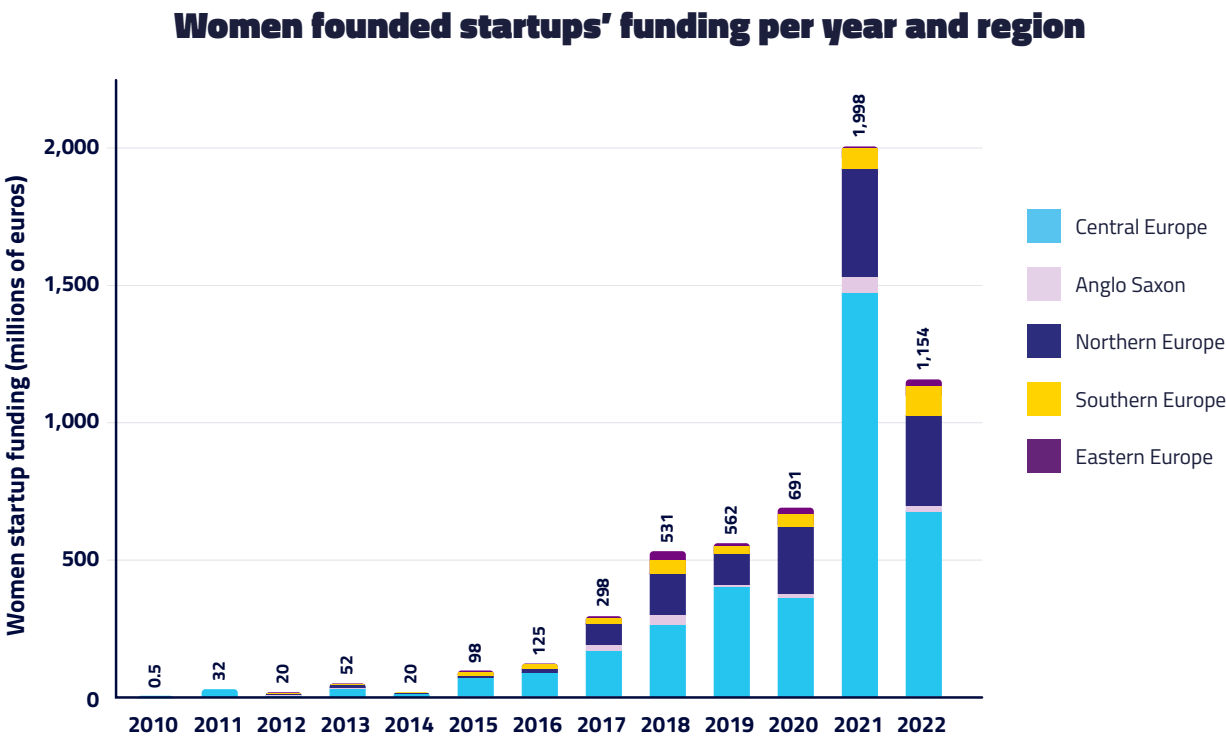
Women founded startups' funding per year and region

Legend:
- Central Europe
- Anglo Saxon
- Northern Europe
- Southern Europe
- Eastern Europe

YEAR	REGION				
	Central Europe	Anglo Saxon	Northern Europe	Southern Europe	Eastern Europe
2010	0.0%	0.0%	29.1%	0.0%	0.0%
2011	45.8%	0.0%	0.0%	5.1%	0.0%
2012	7.4%	16.5%	33.7%	23.7%	6.3%
2013	18.2%	0.8%	33.0%	21.1%	80.6%
2014	6.6%	0.0%	8.4%	3.5%	5.9%
2015	9.7%	1.6%	5.9%	18.7%	1.7%
2016	13.8%	5.5%	4.7%	6.8%	4.6%
2017	11.0%	33.8%	17.0%	7.9%	11.5%
2018	13.8%	50.8%	13.5%	17.8%	26.8%
2019	15.4%	10.4%	23.5%	2.7%	12.8%
2020	13.4%	30.7%	9.2%	17.8%	20.9%
2021	19.5%	41.4%	8.6%	8.9%	3.5%
2022	9.9%	24.6%	8.1%	13.6%	3.3%
TOTAL	14.2%	16.7%	15.0%	11.3%	15.5%

Women Deep Tech startups receive the first funding faster—EU countries

TIME TO FIRST FUNDING	Coefficient	Standard error
Women founding team	-0.27 ***	0.09
Number of founders	-0.19 ***	0.03
Number of patents	0.02 **	0.01
REGIONS		
Central Europe	-0.18	0.20
Eastern Europe	-0.12	0.22
Northern Europe	-0.00	0.21
Southern Europe	-0.42	0.21
TECHNOLOGIES		
Blockchain	-0.14	0.20
Hardware	0.08	0.09
Mobile app	0.12	0.19
Nanotech	-0.13	0.17
Quantum	-0.04	0.32
Sensors	0.09	0.10
Vision	0.02	0.11
Constant	2.03 ***	0.20

N=3,98

Women Deep Tech startups receive outside funding faster.

Larger founding teams are also faster at receiving outside funding.

Startups with more patents are marginally slower at receiving outside funding.

Time to first funding does not vary across technologies.

This regression evaluates the simultaneous influence of number of founders in the founding team, the presence of women in the founding team, number of patents, regions, and technologies on the time to first funding of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech startups appear to receive more rounds but not more funding—EU Countries

These graphs show the average total funding and the average number of rounds for Deep Tech startups that receive external funding. While average total funding is comparable between women Deep Tech startups and male-only Deep Tech startups across most regions, the average total funding is lower when the founding team has a majority of women.

Funding is higher in Northern Europe and Central Europe.

Women startup appear to receive more rounds of funding across all regions.

Legend:
- Startups
- Women Startups
- Majority Women Startups

Average total funding per region

Average rounds per region

Women Deep Tech startups do not receive more rounds

NUMBER OF ROUNDS	Coefficient	Standard error
Women founding team	0.14	0.09
Number of founders	0.54 ***	0.03
Age	0.08 ***	0.01
Number of patents	0.15 ***	0.01
REGIONS		
Central Europe	-0.82 ***	0.21
Eastern Europe	-0.73 ***	0.24
Northern Europe	-0.65 ***	0.23
Southern Europe	-0.10	0.23
TECHNOLOGIES		
Blockchain	0.40	0.24
Hardware	0.13	0.09
Mobile app	0.24	0.21
Nanotech	0.91 ***	0.21
Quantum	0.45	0.36
Sensors	0.02	0.11
Vision	-0.51 ***	0.11
Constant	1.07 ***	0.25

N=4,222

When including the size of the founding team and the age of the startup, the presence of women in the founding team becomes irrelevant in explaining the number of rounds.

Larger founding teams receive more rounds of funding as well as older startups and startups with more patents.

Startups in all regions receive less rounds of funding than startups in the Anglo-Saxon region.

Artificial intelligence startups receive less rounds of funding than startups in blockchain and nanotech but more than vision startups.

This regression evaluates the simultaneous influence of the presence of women in the founding team, number of founders, age, number of patents, regions, and technologies on the number of rounds of Deep Tech startups.

The reference group captured by the constant term is Anglo-Saxon and Artificial intelligence.

Women Deep Tech startups receive less total funding — EU countries

NUMBER OF ROUNDS	Coefficient	Standard error
Women founding team	-0.21 **	0.11
Number of founders	0.48 ***	0.04
Age	0.07 ***	0.02
Number of patents	0.12 ***	0.01
REGIONS		
Central Europe	0.28	0.23
Eastern Europe	-0.54 **	0.26
Northern Europe	-0.33	0.24
Southern Europe	-0.70 ***	0.24
TECHNOLOGIES		
Blockchain	0.02	0.28
Hardware	-0.11	0.11
Mobile app	-0.52 **	0.24
Nanotech	-0.48 **	0.20
Quantum	0.64	0.39
Sensors	-0.39 ***	0.13
Vision	-0.42 ***	0.13
Constant	-0.95	0.27

N=2,314

Deep Tech startups with women in their founding team receive less total funding.

Deep Tech startups with larger founding teams, more patents, and older receive more funding.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the total funding of Deep Tech startups. Total Funding is the logarithm of total funding to reduce the effect of large funding.
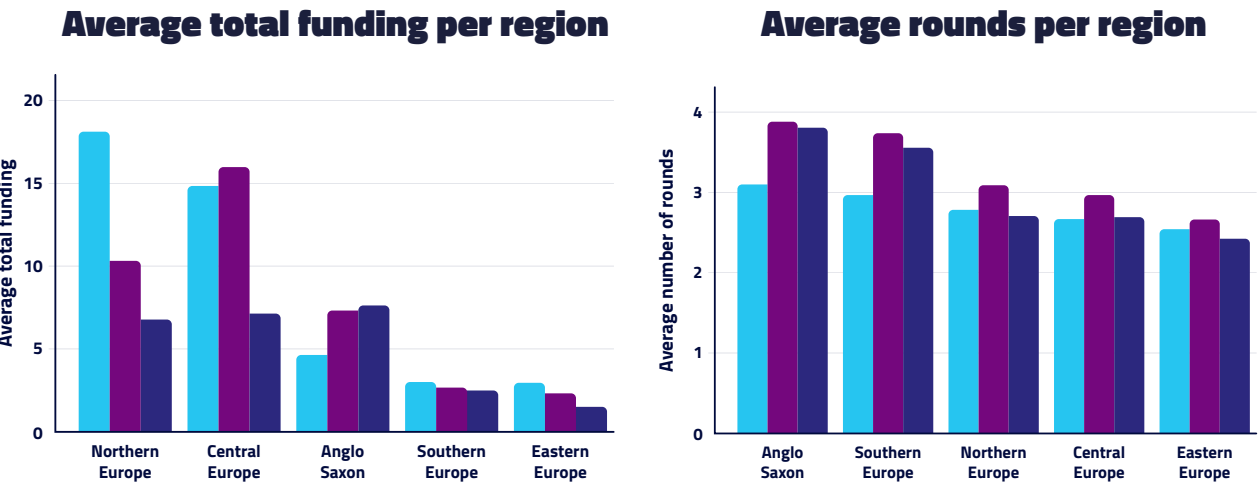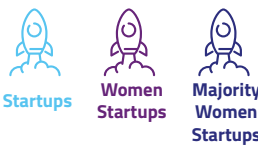
The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech teams receive less funding per round

Deep Tech startups with women in their founding team receive less total funding.

Deep Tech startups with larger founding teams, more patents, and older receive more funding.

FUNDING PER ROUND	Coefficient	Standard error
Women founding team	-0.27 ***	0.10
Number of founders	0.37 ***	0.03
Age	0.03 **	0.01
Number of patents	0.09 ***	0.01
REGIONS		
Central Europe	-0.41 ***	0.10
Eastern Europe	-0.37	0.16
Northern Europe	-0.12	0.13
Southern Europe	-0.69 ***	0.13
TECHNOLOGIES		
Blockchain	0.02	0.26
Hardware	-0.13	0.10
Mobile app	-0.59 ***	0.22
Nanotech	-0.57 ***	0.18
Quantum	0.59	0.36
Sensors	-0.42 ***	0.11
Vision	-0.27 **	0.12
Constant	-1.60	0.26

N=2,314

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the funding per round of Deep Tech startups. Funding per round is the logarithm of funding per round to reduce the effect of large funding rounds.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

The size of the first funding round is smaller for women Deep Tech startups

FIRST FUNDING ROUND	Coefficient	Standard error
Women in founding team	-0.26 ***	0.19
Number of founders	0.20 ***	0.03
Age	0.01	0.01
Number of patents	0.05 ***	0.01
REGIONS		
Central Europe	0.52 ***	0.21
Eastern Europe	-0.14	0.23
Northern Europe	-0.21	0.21
Southern Europe	-0.71	0.21
TECHNOLOGIES		
Blockchain	0.23	0.23
Hardware	-0.02	0.09
Mobile app	-0.50 **	0.20
Nanotech	-0.33 *	0.18
Quantum	0.38	0.35
Sensors	-0.23 **	0.11
Vision	-0.04	0.12
Constant	-1.37 ***	0.12

N=2,511

Deep Tech startups with women in their founding team receive less funding in their first round.

The number of founders of the startup and number of patents are positively associated with the funding in the first round.

The age does not affect the amount of the first round amount.

Non-Anglo-Saxon startups receive less funding regardless of the region except for Central Europe.

Blockchain and quantum startups receive more funding in the first round than artificial intelligence startups. While mobile apps and sensors receive less.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the first funding of Deep Tech startups. Size of first round is log.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech startups are more likely to receive their first funding from public sources

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on whether the first funding of Deep Tech startups is public.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

PUBLIC FIRST FUNDING ROUND	Coefficient	Standard error
Women in founding team	0.30 ***	0.11
Number of founders	-0.18 ***	0.04
Age	-0.06 **	0.02
Number of patents	0.00	0.01
REGIONS		
Central Europe	0.03 ***	0.27
Eastern Europe	-0.26	0.30
Northern Europe	-0.15 ***	0.28
Southern Europe	0.43 ***	0.27
TECHNOLOGIES		
Blockchain	-0.76 ***	0.35
Hardware	0.46 ***	0.12
Mobile app	0.65 ***	0.23
Nanotech	0.32 ***	0.23
Quantum	0.30	0.42
Sensors	0.33 ***	0.14
Vision	0.20 ***	0.15
Constant	-0.73 ***	0.31

N=2,910

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on whether the first funding of Deep Tech startups is public.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech startups are more likely to receive grants but less likely to receive early and late VC —EU countries

Women Deep Tech startups are more likely to receive grants.

However, they are less likely to receive early VC and late VC.

Larger founding teams are more likely to get early and late VC. While patents is associated with lower seed but higher early and late VC.

Type of funding (coefficients)	Grant	Seed	Early VC	Late VC
Women in founding team	0.050 ***	-0.020	-0.022 **	-0.008 *
Number of founders	-0.000 *	-0.001	0.043 ***	0.020 ***
Age	-0.023 ***	-0.056 ***	0.018 ***	0.009 ***
Number of patents	-0.001	-0.017 ***	0.010 ***	0.009 ***
REGIONS				
Central Europe	0.046 ***	-0.002	0.011	0.008
Eastern Europe	0.034	0.147 ***	-0.100 **	-0.009
Northern Europe	0.049 *	0.089 ***	-0.039	-0.009
Southern Europe	0.090 ***	-0.039	-0.088 ***	-0.014
TECHNOLOGIES				
Blockchain	-0.062 **	0.062	0.008	0.001
Hardware	0.080 ***	-0.096 ***	-0.011	0.004
Mobile app	0.100 ***	-0.094 ***	-0.007	0.004
Nanotech	0.200 ***	-0.147 ***	-0.055 **	-0.017 *
Quantum	0.137 **	-0.157 ***	-0.026	-0.023
Sensors	0.052 ***	-0.069 ***	-0.015	-0.003
Vision	0.044 ***	-0.028	-0.026 *	-0.007
Constant	0.266 ***	0.647 ***	0.100 ***	-0.051 ***

This set of regressions evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, number of patents, regions, and technologies on the likelihood of receiving a certain type of round.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Women Deep Tech startups are more likely to have government, non-profit, and incubators—EU countries

The likelihood of having government funding, incubators and similar, and non-profit funding increases with women in the founding team.

Other types of investors—universities, angels and similar, venture capital and similar, and corporate — are as likely to invest in any type of gender-mix team.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

Type of investor (coefficients)	University	Government	Non-profit	Incubator	Early stage	Venture Capital	Corporate
Women in founder team	-0.11	0.28 ***	0.20	0.32 ***	0.07	-0.08	-0.10
Number of founders	0.19 *	0.11 ***	0.10 *	0.00	0.36 ***	0.37 ***	0.30 ***
Age	-0.06 **	0.13 ***	-0.06 ***	-0.10 ***	0.05 **	0.04 **	0.08 ***
REGIONS							
Central Europe	0.97	-1.58 ***	-0.07	0.06	-0.51	-0.15	0.30
Eastern Europe	-0.64	-1.87 ***	0.14	-0.25	-0.19	-0.16	0.01
Northern Europe	0.80	-1.26 ***	-0.78 *	-0.00	-0.34	-0.17	-0.06
Southern Europe	1.62 ***	-0.63 ***	0.44	0.43	-0.15	-0.91 ***	0.17
TECHNOLOGIES							
Blockchain	-0.33	-1.47 **	-0.56 ***	-1.00 ***	0.51 *	1.03 ***	
Hardware	0.42 ***	0.71 ***	0.11	0.00	-0.14	-0.16	-0.09
Mobile app	-0.22	-0.46	-0.01	0.34	0.09	-0.47 **	-0.12
Nanotech	1.34 ***	1.18 ***	0.59 **	-0.28	-0.44 *	-0.40 **	-0.30
Quantum	1.14 ***	1.52 ***	1.00 **	-0.61 *	-0.34	0.42	-0.14
Sensors	0.02	0.39 ***	0.05	0.17	0.00	-0.16	0.16
Vision	-0.07	0.28 **	0.04	-0.17	-0.52 ***	-0.36 ***	-0.17
Constant	-3.36 ***	-1.19 ***	-2.24 ***	0.89 ***	-2.26 ***	0.55 ***	-2.02 ***

Women Deep Tech startups share of valuation is highest in Northern Europe—EU Countries

The Anglo-Saxon region has the highest total valuation followed by Central Europe. However, Northern Europe has a 23% valuation going to women founded startups.

Total valuation over time per region

Legend:
- Anglo Saxon
- Central Europe
- Eastern Europe
- Northern Europe
- Southern Europe

Percentage of valuation to women founded startups per region

Anglo Saxon	Central Europe	Eastern Europe	Northern Europe	Southern Europe
0.26	0.15	0.08	0.26	0.16

First valuation of women Deep Tech startups is not significantly different from male-only in most regions and technologies—EU countries

The first valuation is higher in Central Europe, but there is no significant difference between women Deep Tech startups and men-only startups.

Women Blockchain startups receive significantly less financing, while women Nanotech startups receive significantly more.

First valuation and regions

	Central Europe	Northern Europe	Southern Europe	Anglo Saxon	Eastern Europe
Startups	17.04	8.98	6.47	5.77	3.07
Women Startups	16.48	8.44	5.32	6.06	3.89

First valuation and technologies

	Quantum	Hardware	Nanotech	Blockchain	AI	Sensors	Vision	Mobile App
Startups	21.9	16.2	14.5	9.7	9.4	9.0	8.9	7.7
Women Startups	20.6	11.0	30.4	4.2	6.0	6.1	8.0	14.0

Women Deep Tech startups receive a lower first available valuation—EU countries

Women Deep Tech startups get a lower first available valuation.

The first valuation increases with number of founders and the age of the startup at the time of this first valuation.

The average first valuation is €12.4 million, with a mean of €4.5 million.

Central European Deep Tech startups receive a higher first valuation.

Quantum receive higher valuations than artificial intelligence.

This regression evaluates the simultaneous influence of the presence women in founding team, number of founders, age of the startup, regions, and technologies on the first valuation of startups. Log of first valuation is used to reduce the effect of large valuations and patents is windsorized at 10.

The reference group captured by the constant term is Anglo-Saxon and Artificial Intelligence.

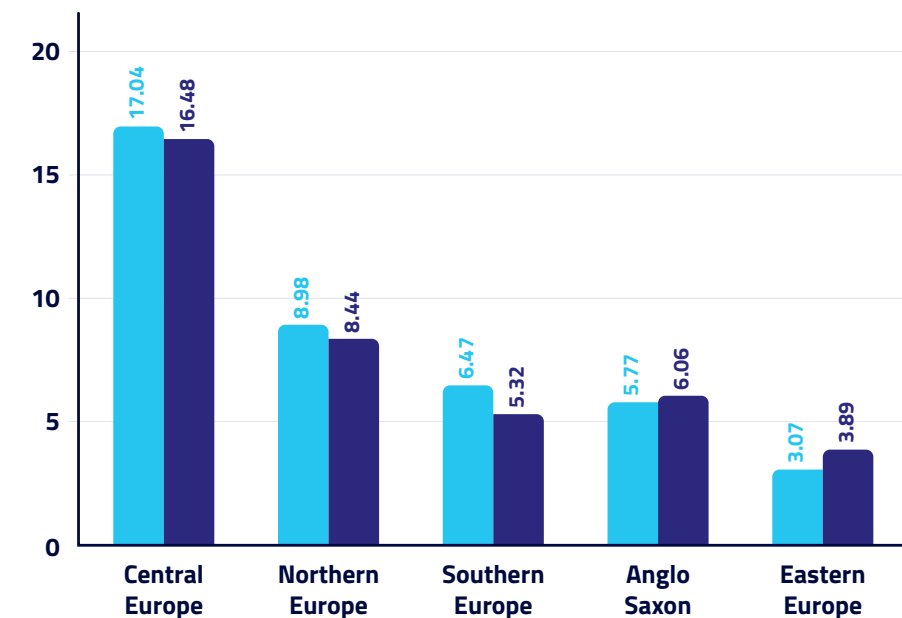| FIRST VALUATION	Coefficient	Standard error
Women in founding team	-0.22 ***	0.07
Number of founders	0.19 ***	0.02
Age	0.30 ***	0.01
Number of patents	0.12 ***	0.01
REGIONS		
Central Europe	0.52 ***	0.07
Eastern Europe	-0.47 ***	0.11
Northern Europe	-0.18	0.09
Southern Europe	-0.29	0.10
TECHNOLOGIES		
Blockchain	0.10	0.16
Hardware	0.10	0.07
Mobile app	0.09	0.17
Nanotech	0.04	0.16
Quantum	1.03 ***	0.26
Sensors	-0.20 **	0.09
Vision	-0.00	0.09
Constant	0.03	0.08

N=2,536

Last valuation of women Deep Tech startups is not significantly different from male-only in most regions and technologies —EU countries
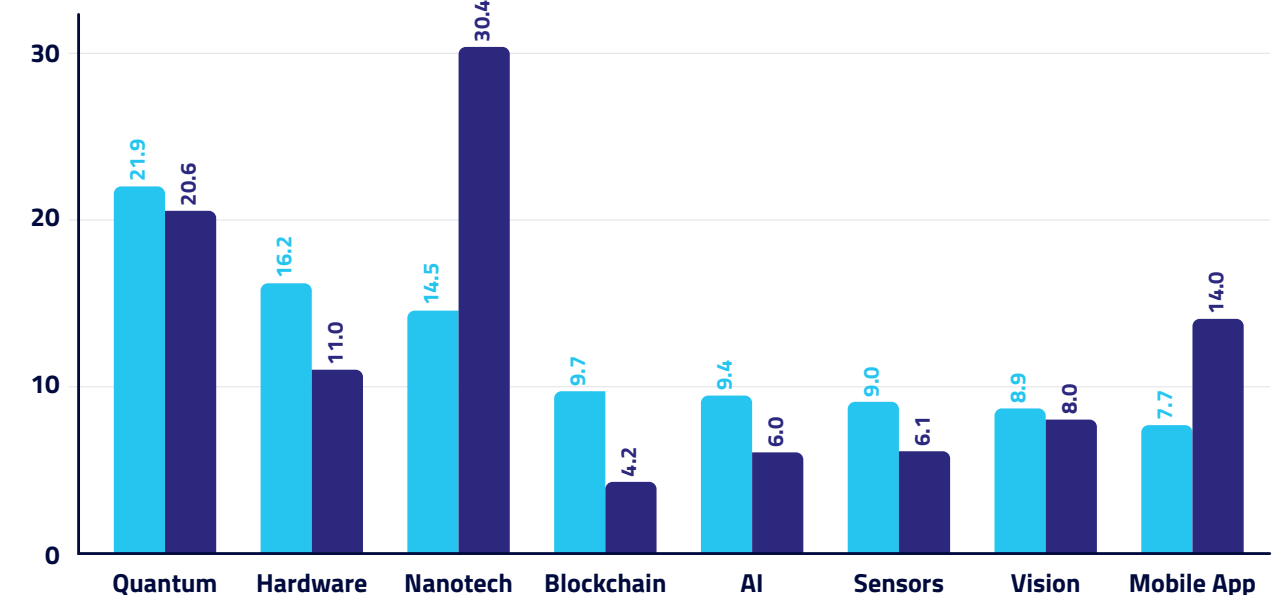
The last valuation is higher in Central Europe, but there is no significant difference between women Deep Tech startups and male-only startups.

Women Blockchain startups receive significantly less financing, while women Nanotech startups receive significantly more.

Last valuation and regions
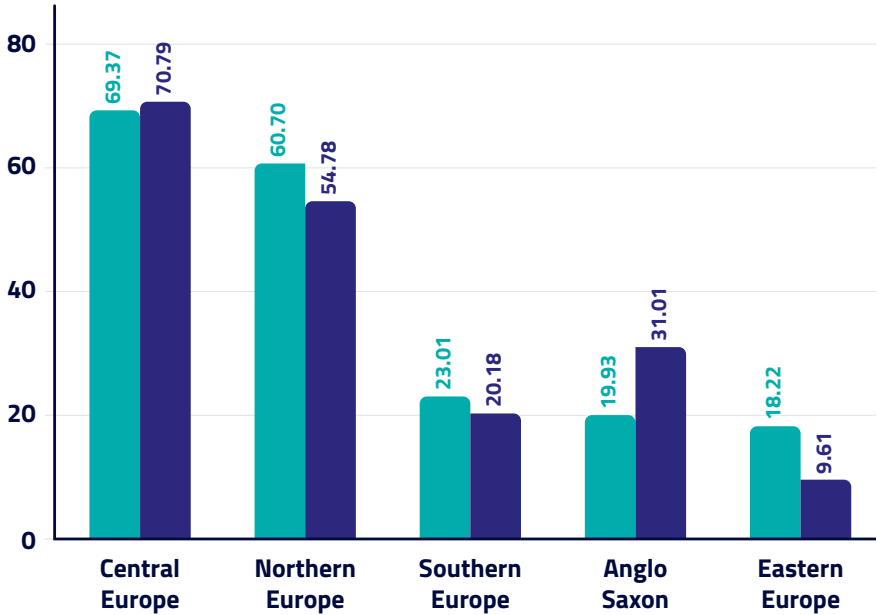
Last valuation and technologies

Last valuation of women Deep Tech startups is not significantly different from male-only in most regions and technologies—EU countries

The last valuation is higher in Central Europe, but there is no significant difference between women Deep Tech startups and male-only startups.

Women Blockchain startups receive significantly less financing, while women Nanotech startups receive significantly more.

Women Deep Tech startups have a marginally different last available valuation.

Central Europe has higher last valuation than the other regions.

Quantum startups have a higher last valuation compared to artificial intelligence. While sensors have lower valuation.
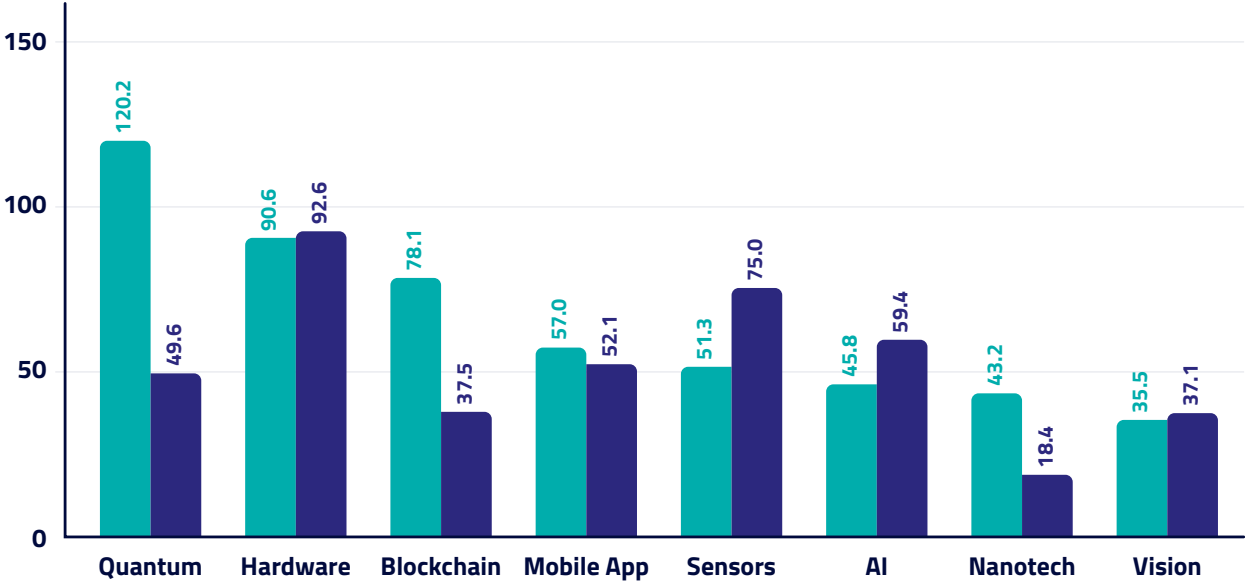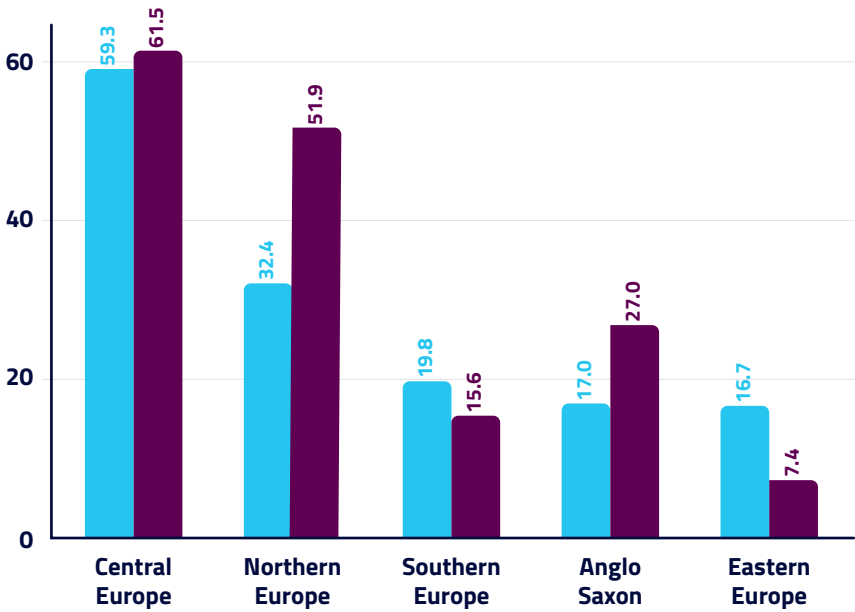
LAST VALUATION	Coefficient	Standard error
Women in founding team	-0.18 *	0.09
Number of founders	0.27 ***	0.03
Age	0.27 ***	0.01
Number of patents	0.11 ***	0.01
REGIONS		
Central Europe	0.97 ***	0.09
Eastern Europe	-1.22	0.15
Northern Europe	-0.28	0.12
Southern Europe	-0.05	0.13
TECHNOLOGIES		
Blockchain	0.36	0.24
Hardware	0.13	0.10
Mobile app	0.21	0.23
Nanotech	-0.25	0.22
Quantum	1.44 ***	0.34
Sensors	-0.30 **	0.12
Vision	-0.14	0.12
Constant	0.14	0.12

Women Deep Tech startups' valuation increase is no different from male-only Deep Tech startups—EU countries

There is no significant difference in the average increase in valuation across regions and technologies for women Deep Tech startups and men-only Deep Tech startups. Even among those that see a change in valuation and those that increase their value, gender does not make a difference in this change.

Increase in valuation and regions

Startups

Women Startups

	Central Europe	Northern Europe	Southern Europe	Anglo Saxon	Eastern Europe
Startups	59.3	32.4	19.8	17.0	16.7
Women Startups	61.5	51.9	15.6	27.0	7.4

Increase in valuation and technologies

	Quantum	Blockchain	Hardware	Mobile App	Sensors	Vision	AI	Nanotech
Startups	114.0	75.1	60.1	49.1	41.0	33.5	30.6	24.7
Women Startups	49.4	28.3	45.1	47.1	98.8	27.9	34.9	15.7
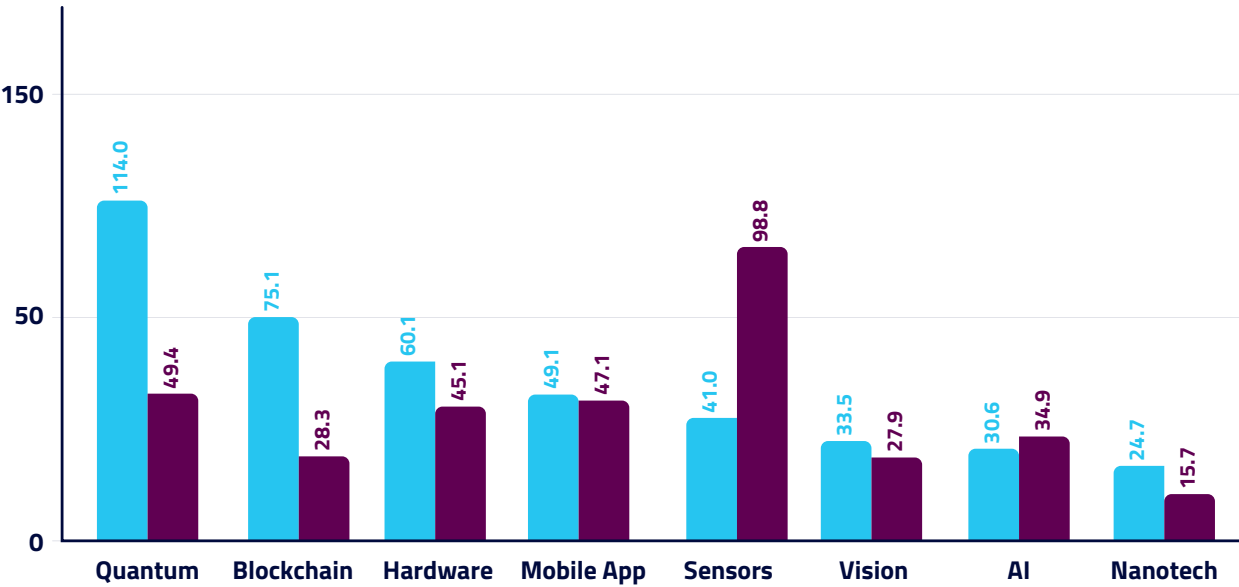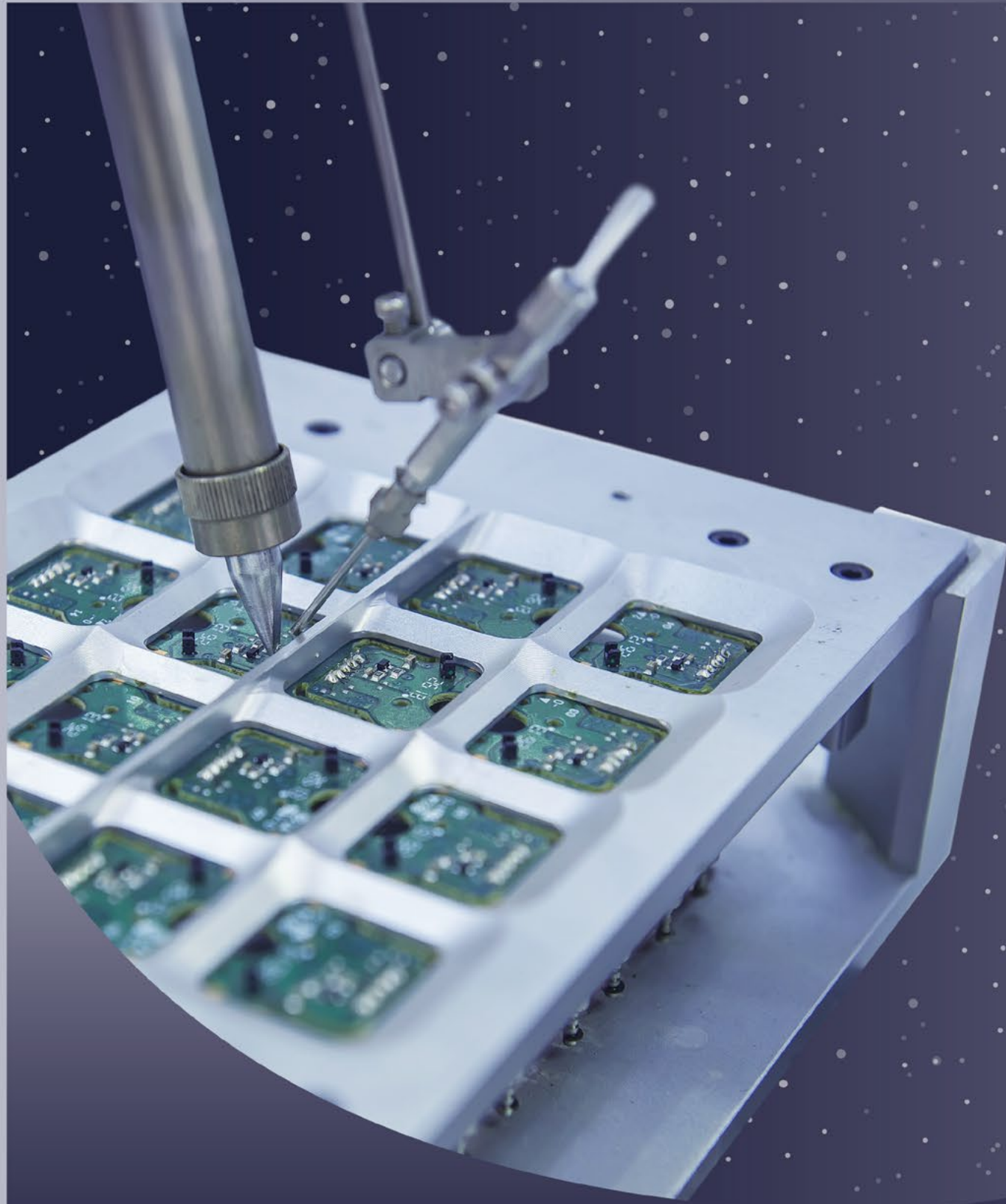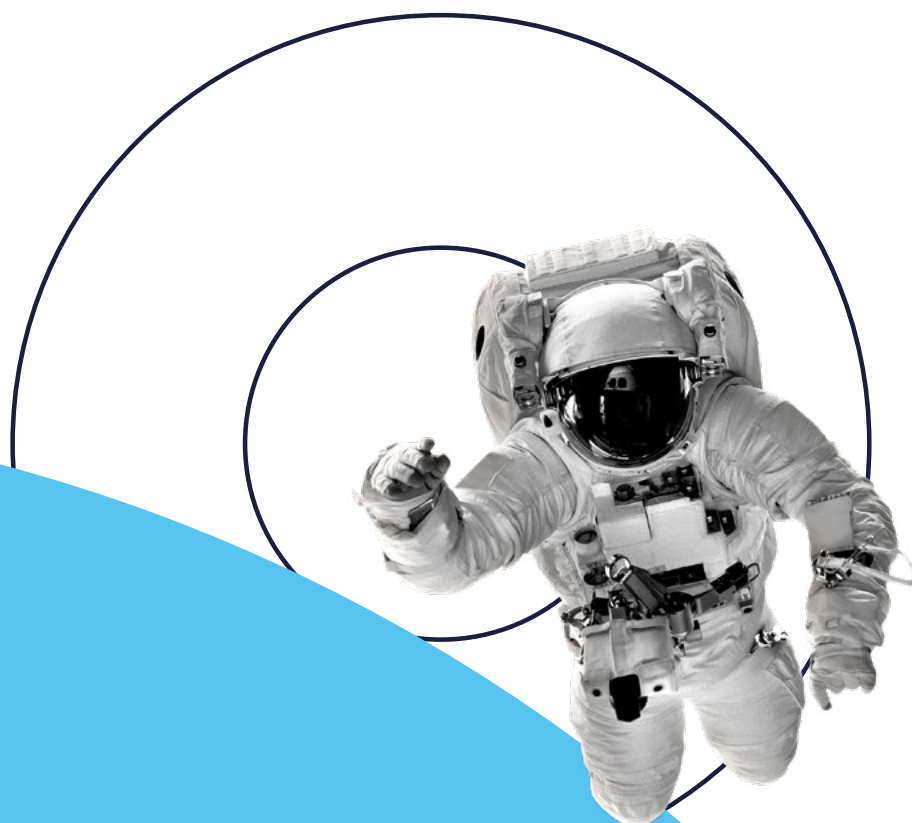
LEARN TO WORK WITH UNCERTAINTY AND HAVE AN OPEN MIND

Paloma Santacoloma
Co-Founder of Biofynt

The founder

Paloma studied chemical engineering in Colombia and then moved to Denmark to do a master and a doctorate in biotechnology.

She worked for an international company in Denmark in the food ingredient sector. She executed different roles from engineer to manager of the pilot plant in the R&D department. In the company, Paloma specialized on developing ideas and scaling then to market. To complement her scientific knowledge, she also did an executive MBA to better understand businesses.

Paloma together with her two partners started the idea of creating a startup as co-founders. The three co-founders are women from Colombia where two of them live in Denmark and the third one lives in Colombia.

They decided to start Biofynt in Denmark because the funding of biotech-based startups is more accessible than in Colombia, and the network could offer more opportunities to support them. Their current funding are mainly grants (soft-funding) from the government which supports the product and business development during this early stage.

The project

Biofynt works on alternative proteins biotechnologically extracted from edible insects (mealworms). The idea comes from one of the co-founders who worked as entomologist in the agricultural sector, originally in getting rid of insects. However, during her master, she focused on how to growth healthy mealworms in controlled production systems for human consumption purposes.

For the business development, the biggest challenge is to understand the customers and their needs. They began from an environmental perspective, but when talking to food companies, they realized that sustainability is not the only aspects that drive them. There are other factors like taste and texture which makes it more challenging when working with such unconventional products.

They have relied on the mentors of the various startup programs in Denmark and Europe to help them to shape the business side since this is the area where the co-founders have less experience. They also gained a lot of advice and support from other startups that are in different development stages.

The women's challenges

For Paloma the most difficult was "to feel that you are indebted towards the investors and that you have to return than money, that was a strong feeling for me that I could not take lightly".

Biofynt

BIOFYNT
Paloma Santacoloma

COAT-IT
Alicja Stankiewicz

CONNECTING FOOD
Maxine Roper

AGROSUSTAIN
Olga Dubey

ÄIO TECH
Nemailla Bonturi

ENERDRAPE
Margaux Peltier

EVOENZYME
María Urbano

MATSUKO
Maria Vircikova

PERSEO
Caterina Coll

PFX BIOTECH
Diana Oliveira

PROTEINFRONTIERS MYCO4FOOD AND BIOMASSPROTEIN
Mette Lübeck

SUSTAINACCOUNT
Chiara Rinaldi

THE EXPLORATION COMPANY
Helene Huby

MICROFY SYSTEMS
Iratxe Perales

MOA FOODTECH
Susana Gómez

NATURAL MACHINES
Lynette Kucsma

POSEIDONA
Sònia Hurtad

I WANTED TO CREATE SOMETHING USEFUL

Alicja Stankiewicz
Founder of Coat-IT

The founder

Alicja always wanted to have her own company because she remembers when she was a kid that the happiest life her parents had was when they had their own business. Her background is academia. She has a PhD in chemical technology and worked for various universities in Poland as well as Scotland. She taught, did research, worked with students, published articles... She found life in academia very interesting and challenging, but she wanted to implement her ideas into something real. For one year, she worked at a large fertilizer company in Poland, and she found the job as not fulfilling, so in 2018 she decided to start the company. Her co-founder had worked with Alicja in academia. They tried it within the university in Scotland but did not work and they both decided to leave academia and start a company. The first startup was founded in Scotland but quickly moved to Poland, where in 2020 they received an EU grant and first investment.

The project

The founders combined two technologies, nanotechnology and coating, and the startup is about nano additives in coatings. The topic was the same, but they decided to apply it to be useful for the industry. The company has developed the technology and now it is focusing on pilot testing and first contracts. The technology side has been well worked on, so there is a lot more to do on the business side. Coat-it has two products ready to sell, so now is about creating a pipeline of customers and progressing on the business side. Early on, there was a lot of interest from large companies for an acquisition, but now the founders also find a good solution to grow the company and expand the business before there is an interest again for an

acquisition from large companies.

The women challenges

From Alicja's perspective, the lack of women in technology startups is to some extent associated with their choice of the type of studies. Having programs to support women is a good starting point. Alicja's would tell women entrepreneurs to recognize their strengths and weaknesses first, develop their strengths for the company and mitigate their weaknesses with a very good team around hers. As Alicja admits, at the beginning she tried to do everything herself. Today she would have done it differently, concentrating on the things she is good at.

coat-it

BUILDING A DEEPTECH SOLUTION TO IMPROVE VISIBILITY AND IMPACT IN AGRIFOOD SUPPLY CHAINS, IS ABOUT VISION, PASSION AND DRIVE

Maxine Roper
Co-Founder of Connecting Food

The founder

After business school in England and France, Maxine worked for over 20 years in sales, marketing and innovation roles in the agrifood industry in France and the UK, at Nestlé, Mars, Andros and Sara Lee, as well as at upstream companies such as Avril Sofiproteol. She created her first startup in green energy, back in 2009 - the experience taught her a huge amount before meeting her associate and co-founder of Connecting Food, when they decided to apply their industry knowledge to build a technology solution to address sustainability issues in agrifood supply chains.

They recognized the value of the information that every actor in the supply chain generates from the farm to finished products, and the opportunity for technology to leverage that data to improve transparency in supply chains and address growing issues of predictability, traceability and sustainability. It is all about connecting the dots: Connecting Food was born.

A European deeptech solution addressing strategic issues in the agrifood industry

Connecting Food is a Data Management Solution for agrifood supply chains, enabling brands, retailers and farming groups to ensure their products are compliant with regulation and quality specifications. The solution assesses risks and increases visibility into supply chains, thanks to tech-enabled product monitoring and configurable digital auditing on quality and sustainability criteria.

The traceability capabilities that Connecting Food provides up to raw material origins are key to assess risks and to ensure compliancy on food safety, deforestation, social labour laws and environmental impact.

Created in 2016, Connecting Food has major retailers, brands and farming cooperatives as

clients across several countries. The company is funded by the European Commission, which recognized both the value of their technology based on intelligent algorithms, digital twins and blockchain, and because Connecting Food addresses several strategic issues important to Europe.

But what is missing to create more women-founded Deeptech solutions?

Maxine believes an important aspect for female entrepreneurship is the lack of female role models and mentors embodying what is possible for girls to achieve in this domain.

Maxine makes a parallel with the strength and endurance in male-dominated sports where women have not been as mediatised. Just 15 years ago, there was far less coverage of women's sports such as football at an international level: football was introduced in the Olympic games in 1900, women's football had to wait until 1996 – the year that Generation Z was born, the majority of which are still in higher education or are only just starting out in the workforce today. Maxine thinks the years of difference in terms of education and the promotion of women in highly difficult challenges such as sport or entrepreneurship, are the basis of the discrepancy between the number of male and female founded deeptech startups.

To change that, Maxine believes society needs to educate, prepare, train and promote women in incredibly hard domains. Just like in high-level sports, from a young age girls and boys need to see more women role models, firstly to remind us all that it is perfectly possible for a girl to get to that level, secondly because we all need heroes we want to be like to remember why we are enduring the pain and the effort of trying to get there!

CONNECTING FOOD

ENTREPRENEURSHIP IS NOT ABOUT GENDER. IT'S MORE ABOUT IDEAS

Olga Dubey
*Co-Founder &
CEO of Agrosustain*

The founder

Olga spent 5 years doing her Ph.D. studies at the University of Lausanne in the department of Plant Molecular Biology. At the end of her Ph.D., she had some promising results that inspired her to go further and do something more applicable like biological/natural fungicides. This was the idea behind founding Agrosustain.

Olga co-founded AgroSustain, together with her husband, who has a PhD in evolutionary biology from the University of Lausanne and has already co-founded one other startup previously. Due to their scientific background, Olga decided to acquire skills in business development and finance by attending several entrepreneurial courses organized by InnoSuisse and Venture Kick.

From early on, Olga and Sylvain separated their activities, where Olga took over CEO role, while Sylvain decided to focus on the R&D and took a CTO role at AgroSustain.

To date, AgroSustain has secured over CHF 12 Million, where in the first round of investment, it was mostly business angels and family offices, followed by strategic investors and venture capitalists.

The project

AgroSustain is a one-stop-shop solution for biological plant protection that aims to reduce food waste and support sustainable food production by developing farm to fork solutions, like biological and natural fungicides and coatings.

Today, AgroSustain is commercial with its first product, natural coating. Olga admits, doing the first sale is a challenge because it takes time to find the early adopters that are interested in taking the risk to use novel technology. But they went over this challenge by working with well-established food distributors and producers, who were searching for solutions like the one of AgroSustain and were ready to take a risk in order to address the challenge of food waste.

From an investor perspective, Agrosustain is generating sales which means that the product is requested on the market. Now, the goal is to increase the sales further thanks to the highly motivated and hard-working team of AgroSustain.

The women's challenges

Indeed, we currently have fewer female founders than males, but Olga believes that it might change in the future, as at the end of the day, what counts is the usefulness of the idea and its success on the market.

AgroSustain
Natural plant protection

IT IS ROUGH BUT THERE ARE PEOPLE TO BACK YOU UP

Nemailla Bonturi
*Co-Founder & CEO
of ÄIO Tech*

The founder

Nemailla is originally from Brazil where she did her undergrad in biotechnology and her Master and PhD in chemical engineering. She was working at a biotech company, but instability in the country led her to look for positions in Europe. She found an open position at the university that fit her profile perfectly around synthetic biology. She has been in Estonia since then.

Estonia is the largest country in unicorns per capita. So, she started to get in touch with the ecosystem and the research was maturing and they decided to spin off from the university.

To move into a startup with her co-founder was scary at the beginning. The motivation was to find the money to scale up the technology. As scientists, they are used to having people find mistakes, but investors look at the potential. So, this also becomes a motivation. Also, there is the issue for a scientist of seeing the work having a positive impact on the real world.

They have raised almost three million in grants—non-dilutive funding, and private investors from VCs and family offices. They first funding was from private investors, a food tech VC in Finland, then a family office as part of an accelerator; then they have convertible loans from impact VCs.

The project

The company's mission is to change the way we produce, consume and perceive foods and other products. On the oil drop level. By recognizing the full worth of microbial oils, ÄIO deliver tailored solutions for industries such as food, feed and cosmetics.

The basic technology started in her PhD in Brazil, Nemailla started to work with a very versatile yeast, she started to use it for biofuels but in Estonia they found out that biofuels were not the only application but also food, cosmetic, pet food...

The university has been very important, it is a facilitator, as well as the Estonian government that has many funds to support startups, it is very startup friendly. Big corporations also collaborate with them, they have some co-development with large companies interested in better food production systems and cosmetics and they spend time and resources testing ÄIO products.

The main challenge has been working with regulators to get the Novel Food permit. This is the main challenge to all food startups in Europe. The process is not streamlined, they don't tell you what to provide, it is a black box.

The women's challenges

There are few women in deep tech startups they are increasing, but there are few.

One part to solve it is to stimulate investment to women startups. Education is always a key aspect, but it needs to start with kids. It´s also needed more gender balance in VCs and governmental levels, even have quotas at the beginning.

Nemailla's recommendation to a woman entrepreneur is not to give up even if it hard, and use the network that exists to get support.

ÄIO

I HAD NEVER IMAGINE I COULD STABLISH MY OWN COMPANY

Margaux Peltier
Co-Founder & CEO
of Enerdrape

The founder

Margaux arrived at EPFL University to do her bachelor and master's in civil engineering. She took a year off between the bachelor and the master to work as an engineer in two different offices. Her areas of expertise were energy and sustainable architecture.

After completing her education, she worked as a scientific assistant at the Soil Mechanics Laboratory (LMS) to continue her research on a topic related to her future company, Enerdrape.

As her passion for entrepreneurship grew, she enrolled in many seminars where she was given encouraging comments regarding the Enerdrape technology. Following it, they were ready to launch Enerdrape with her co-founders, PhD. Alessandro Rotta Loria and Prof. Lyesse Laloui, her master thesis post-doc assistant and professor at EPFL. As Margaux would be leading the project she assumed the position of CEO.

When they started working on the project, on 2019, Margaux was still working at the Laboratory (LMS) and she was able to free up time for her to be able to explore the startup thanks to internal grants from EPFL.

The project

Enerdrape operates the world's first prefabricated geothermal panel technology. Thanks to an installation without drilling, Enerdrape panels capture renewable thermal energy from underground areas such as car parks or tunnels, thus achieving significant CO2 savings.

Operating in a traditionally conservative industry, Enerdrape faced initial resistance to innovation, as many potential clients were hesitant to be the first to adopt new technology. However, through persistence and by proving the efficacy of their solution thanks to a pilot-partnership with REALSTONE, a Swiss real estate fund managing over 4.2 billion CHF in real estate assets. Thanks to their pilot success, Enerdrape secured their first major clients, COOP, the largest food retailer in Switzerland. This partnership provided incredible exposure and demonstrated the reliability and benefits of their technology.

Having successfully installed their hardware product, Enerdrape considers this a major accomplishment. With the installation of 200 panels last year, they began generating revenue, and this year, they plan to place an additional 500 panels. The team also expanded to five members last year, marking it as The Year of Many Milestones for Margaux and her team.

The women's challenges

Margaux claims that the number of women working in the construction industry is already small, particularly among civil engineers. Therefore, the likelihood of having a woman as CEO is already low if there aren't enough women in the industry to begin with.

There is more and more sensitization taking place, she believes, since she is invited to talk about her career as a woman engineer and entrepreneur to young girls to show them that it's an option for later. If these young girls see more women assuming this role, this can motivate them and give them insight into that this option exists, and they can consider it.

As Margaux finishes, it is a fact that in entrepreneurship failure is common but anyway, women and men have the same chances to fail or win and shouldn't be afraid of failure because they will learn a lot!

EVERY DAY THERE IS SOMETHING TO LEARN

María Urbano
Co-Founder & CEO
EvoEnzyme

The founder

María studied Business Administration and completed postgraduate degrees in strategic marketing, digital business, finance and international trade. She has experience in business development, innovation management, marketing, commercial operations and communication across various sectors and international markets.

From the beginning of her studies, María aspired to build something on her own, once she acquired the necessary knowledge and experience.

She began working in the communications department of a large multinational company. She also worked in the US for a utility company, focusing on the digital side and supporting R&D. Upon returning home, she joined a large company with a strong emphasis on innovation and fast-moving consumer goods, starting as a product manager and finally becoming in the International Marketing & Communication Director, responsible for innovation and development plans for new international businesses. Later, she transitioned to academia, working for a university specializing in animation and software engineering, an opportunity that allowed her to indulge her love for creativity.

EvoEnzyme was founded based on a family of patents resulting from the research led by Dr. Miguel Alcalde over more than 20 years at CSIC. When the patent was ready to enter national phases, Miguel and María, along with three colleagues from CSIC – two of whom where students- decided to lunch EvoEnzyme in 2019.

The project

EvoEnzyme focuses on the commercialization of unique enzymes engineered through directed evolution for the pharmaceutical and industrial sectors, along with the development of directed evolution projects.

They are a unique startup. From a marketing perspective, the product is excellent and already well-known in the market, supported by a renowned researcher. The team has doubled in size over the last four months.

Grants are very relevant to the company. To date, they have received five European grants, three national grants and four regional for research in health, medical devices, sustainable chemistry, plastic degradation and renewable energy. Operating a biotech lab is expensive, and these grants are crucial not only for financing but also for staying connected with disruptive innovation

The women challenges

I believe we have a responsibility to help reduce the gap that still exists in the industry, particularly in certain sectors, by promoting diversity and inclusion not only in terms of gender but also age, which is rarely discussed but very prevalent, especially when it comes to women.

Promoting diversity is essential because working through diverse teams allows us to fully leverage synergies. In conclusion, as leaders, we have both the ability and responsibility to help bridge the existing gap in our industry. By offering mentorship, promoting diversity, practicing inclusive leadership- regardless of gender, age, race-and supporting grassroots initiatives, we can work together to create an environment where everyone, regardless of their background, has the opportunity to thrive and reach their full potential.

FOR ME, DOING A STARTUP IS ABOUT THE FREEDOM

Maria Vircikova
*Co-Founder & CEO
of Matsuko*

The founder

Maria was a researcher in AI and robotics at the university. In her teaching she found her students to be great programmers but there was no thinking about starting our own companies. She decided to get in touch with entrepreneurs in her country to talk to the students. She developed a course on startups for the students and involved in some of those startups.

She met her co-founder, who has a lot of experience in video games and 3D animation and computer vision and decided to do a company together. They first began providing services to large companies in Europe mixing 3D animation with AI with augmented reality. By this time, she decided to drop the university as she did not have time for both things.

The initial funding came from angel investors and a venture fund, they helped us not only with the funding but also with the network and the strategy. Then, they received funds from venture capital firms and corporate funds. European projects are also an important source of cash.

The project

At this point, they decided to move from being a service company to be a product company and started with the idea of holographic communication.

They cooperate with many different large organizations. First, they have several European projects which let them work with universities and companies. They choose those projects that allow them to develop their technology. For instance, they have a large European project on 6G that they need for their holographic calls. With universities, they have R&D projects as well as engage students. They also cooperated with large telco companies through their incubators like Wayra in London. Large companies help them also with marketing. These companies are also our distributors.

The largest challenge is the scaling up of the company. They need expertise on the business side to know how to grow the company.

The women's challenges

A way to improve the number of women in deep tech is to provide visibility to women founders. Girls should have these role models for them to know that this career path exists. Panels at conferences with only men does not help, the same thing with large companies, a woman does not want to be there as the only women. Also, from the government perspective policies like in Northern countries would be great.

In terms of recommendations, just know that there is a lot of help out there and they should use them; be involved in those communities.

MATSUKO

I DON'T SEE MYSELF AS A TYPICAL FOUNDER

Caterina Coll
*Founder & CEO
of PERSEO*

The founder

With a background in Chemical Engineering and an MBA, Caterina is always getting educated and learning things. Now she is the CEO of PERSEO.

PERSEO is a spinoff from a mid-sized company, and was an R&D innovation project back in the early 2000's. It was an original idea of what is now known as circular economy, transforming waste into bioethanol and bioenergy.

At the time, using waste to produce energy was seen as something rare; now it is seen as normal. The company got in touch with a research centre in energy. The original process pilot was co-developed with them, and the process was scaled up over time. Once the project was large enough that it could be industrialized, the spinoff was created.

Caterina decided to join the spinoff because of the personal investment she had made over these years in getting the project ahead. She originally came as the head of the innovation department at Perseo, she likes innovating, creating the spin off, build the commercial plan, and managing a motivated team.

The project

The funding of the project within the company happened initially with company funds and then through grants at all levels, regional, country, and Europe. This funding helped the project grow and reduce the technological risk of scaling up the technology.

PERSEO is focused on the implementation of industrial plants with their technology, there are currently two business lines, one of them is to build and manage the large plant for bioethanol production and the other is on innovation to work with customers to develop new processes. They manage several plants depending on the type of raw material that comes in.

Customers are companies that generate lots of waste and Perseo reduces the cost of managing this waste and making waste profitable through the production of bioethanol, bioproducts and bioenergy that then they reintroduce in their own production process.

Another business model is smaller companies that also generate waste but not enough to have a plant, so they are studying to build plants that PERSEO will manage for groupings of these smaller companies.

The women challenges

Caterina believes that the reason for so few women in tech startups is because there are fewer women studying these topics at university.

Her recommendation is that women be conscious of choosing to work in what they like, all paths are difficult so they should not give up, believe in the mission and enjoy what they do. There will always be barriers, but with work and commitment they can be overcome and make you grow.

perseo biotechnology

IT IS SOMETHING THAT YOU ARE BUILDING FOR YOURSELF AND FOR THE FUTURE

Diana Oliveira
Co-Founder of PFX Biotech

The founder

Diana holds a PhD in Food Science & Nutrition from the University of Reading, UK. After her PhD, she pursued a research career in various countries in Europe. Throughout her research career she collaborated with several food industries, namely in the dairy sector, mostly on finding new solutions for dairy byproducts and how to valorize the different functional ingredients side streams.

She met her co-founder, Ali Osman, while doing her PhD, but they followed different careers paths. One day, Ali reached out with a project idea related to his son allergy to cow milk protein. The idea was to produce alternative proteins, identical to human milk proteins, and thus allergy- free. This was how PFx Biotech started. A third founder, Harry Barraza, also joined the company from industry.

Diana's motivation to become an entrepreneur was led by the fact that she had been working hard to deliver the best research quality, for so many years, always for someone else's projects

So, why not working equally hard for an innovative project that she truly believed, and be part of it too. Also, the technology PFx is developing is going to help not only children suffering from cow's milk protein allergy, but will also have applications in other advanced nutrition segments, namely sports and elderly nutrition. The technology is aligned with the current sustainability goals by producing more sustainable and healthier foods.

The project

By producing highly bioactive alternative human milk proteins, through precision fermentation, PFx is creating a new category of ingredients that will support and boost the immune system.

The main challenge in such innovative projects is funding. The investment part is difficult because investors need to see not only innovation, but a robust, feasible and economical sustainable

project, and biotech's R&D is very expensive. So, getting to the point where investors are willing to invest might be a long process, that not many early stages start-ups survive to.

The company was initially self-funded with the founders personal money, which enabled to build the ingredients proof of concept. The second step was to have access to competitive and equity-free grants, which is important when the company is just starting. Also establishing good partnerships, namely with well-acknowledged research institutes, that can support the R&D activities, is crucial. Ali Osman, current CEO, is dedicating most of his time on fund raising, and PFx have now several investors interested in investing in the company.

The women's challenges

Women entrepreneurs face a set of challenges to which they are very much committed, namely related with work-life balance, societal expectations and gender bias. However, "times are changing, as well as the recognition of female relevance as entrepreneurs, with several programs targeting female founders and encouraging leadership roles". Nevertheless, in Diana's opinion women are still undervalued and lack support in this environment. When Diana goes to company related events, the percentage of female founders or in high management positions, is still very low. The change is happening but at a slow pace.

In Diana's words, "women should trust more their gut feeling and never be satisfied with less than they want. Often we are too focused on building a successful career, dedicating so much time to it, that we don't even consider the risk of changing. Accepting new roles and moving on, embrace new opportunities, take a risk and be yourself is my advice towards a more satisfying and fulfilled career.

PFx Biotech

I THOUGHT THE IDEA COULD BECOME A BUSINESS AND IT WAS STUPID NOT TO DO IT

Mette Lübeck
Founder of ProteinFrontiers, Myco4food and BiomassProtein

The founder

Mette has a university background as an agronomist, but she moved to biotechnology as a university researcher. First from plant pathology to biorefining of biomass—transforming biomass into useful products. The reason was that there was not much interest or funding in plant pathology but a lot more on the second one, which was trendier.

She had a research project working on grass biorefining at that time and she was invited to an IP fair for Danish universities because she had created a patent application around the technology. Some businessmen said that they were interested and they invited to a talk. At the talk they said that they would like to collaborate to create a startup but not with money but with their time.

This is how the first startup was created, the founders were herself and her husband as scientists, together with the businessmen, they put some of their money before moving to soft funding and then later to private investors/business angels.

The second startup comes from a student project with a interesting topic that she thought it could become a startup, especially as a research assistant was very interested in it. It was very different from the first one as it was founded by university people, although one of the business partners from the first startup also joined for administration and investor relations. It also involved the university technology transfer office that helped in attracting funding for the company. The research assistant became full time employee and CSO of the company. They are four founders, herself and her husband, the research assistant and the businessperson. They also relied on a grant from an agency that takes some equity for the money, but also from other sources of soft funding.

The third one comes from a group of people that had left industry and had an idea, they contacted

many people and contacted Mette. It was strange that they wanted to do deep tech without knowing the technology, but the idea was good. After talking for a while, they decided to start a company together. Again, it was random. Here there are five co-founders with experience in the industry. They are really good in scouting and networking. The soft funding often comes from partnerships with companies and universities to do projects together.

But the journey overall is good for students to have these experiences because it is an inspiration and also, they can do their master projects together with companies.

The project

ProteinFrontiers is a food biotech company on a mission to create new generations of sustainable, affordable, healthy, and tasty dairy products by precision fermentation using inexpensive substrates from bio-based side streams.

Myco4food is a spin-out company from Aalborg University that transforms organic waste products into protein-rich food ingredients using edible fungi and solid-state fermentation.

BiomassProtein is providing a patent pending technology for building and operating sustainable, turn-key plant proteins factories. The technology extracts plant proteins from one of most common available and inexpensive green crops; grass.

The women challenges

In terms of recommendations to women entrepreneurs, first, is to have a good idea and to get help from the tech transfer office. The tech transfer office is key for researchers because they have the business network and knowledge. Also, her recommendation is: do not do it alone.

ProteinFrontiers   **BiomassProtein**

IT'S NOT AN EASY JOURNEY BUT FOR SURE IT'S REWARDING

Chiara Rinaldi
Co-Founder of Sustainaccount

The founder

Chiara has a business background and worked in various corporate positions for many years. While completing an MBA she started focusing on sustainability and eventually joined EY as a senior manager in the climate change and sustainability department.

Although she always had the idea to start her own business, she hadn't found the right opportunity until she met her co-founder. While exploring business ideas, she came across the add from her co-founder and reached out to him.

The initial capital came from Chiara and her co-founder. They started selling a rudimentary manual version of the product. Using the revenues generated, they continued to develop the product, eventually creating the software solution they offer today.

The project

Sustainaccount provides digital solutions to make the built environment more resilient to climate change. Their cutting-edge technology analyses physical climate risks, performs scenario analysis and provides climate adaptation insights to real estate developers, investors, and businesses. This helps reduce the consequences of climate risks, increase resilience and preserve the value of assets.

While most of the customers are in the real estate sector, they initially lacked a network in that sector. However, leveraging the existing network in sustainability and with the help of an advisor they gained insights in the real estate environment and successfully entered that sector. Some of their customers have become partners and support in developing the product and the business. Moreover, they collaborate with universities and other companies.

The women challenges

There is a lack of women in all industries, not only deep tech. Chiara acknowledges that more women are now pursuing studies in these fields, which is great. However, there is the perception that the corporate sector is more rewarding compared to entrepreneurship. This may hold true in the short term, but entrepreneurship is more rewarding in the long-term.

Chiara believes that building stronger networks and creating an ecosystem can empower women by demonstrating that entrepreneurship is a viable path. Even if they don't actively seek support, knowing that it's available can provide valuable psychological reassurance.

Her recommendation for other women aspiring to become deeptech entrepreneurs is simple: go for it! Despite the challenges, the journey is rewarding regardless of the outcome. Not all startup succeed, but the intense leaning experience is valuable and she encourages other women to go for it.

I WANT TO MAKE SPACE MORE ACCESSIBLE, SUSTAINABLE AND COOPERATIVE

Helene Huby
Founder & CEO of The Exploration Company

The founder

Helene has a background in economics and applied mathematics in Paris. She also studied political sciences at ENA. She then moved to do startup investing and she spent +10 years at Airbus and ArianeGroup, both on strategic and operational roles.

The idea of The Exploration Company came because she was frustrated from building a space vehicle that would not be reused and refilled while the future is about those two things. She wanted to create a space vehicle that is the market leader and at the top in technology. Also, there was no such a vehicle in Europe, and it is necessary.

The first to join her were people from her teams at Airbus and ArianeGroup.

One of Helene's core motivation is to unleash the talents of the people joining The Exploration Company, while building a more peaceful space world.

The startup has raised 65 million Euros, 98% coming from European investors. Their objective would be to do an IPO, although they have back up plans.

The project

The tool is a SaaS solution with different modules like one on personal development where The Exploration Company builds reusable space capsules that carry goods and humans to space stations around the Earth and to the Moon.

For Helene, the largest challenge is probably the slow speed, and the lack of boldness of government institutions in Europe compared to the US. The type of industry where the startup competes requires the public sector to move ahead, it is not a pure private business type of industry. Politicians in Europe should be bolder though European institutions have been very supportive of the project.

The women's challenges

She believes that there is a need for models because they inspire, and inspiration transforms people and helps them find themselves.

Helene´s final recommendation to everyone is to believe in yourself and be bold.

I NEVER THOUGHT ABOUT BEING AN ENTREPRENEUR

Iratxe Perales.
CEO at Microfy Systems

The founder

Iratxe's background is double degree in industrial and chemical engineering. From her studies, she went to an engineering company and moved to a technological centre where the startup was founded as a spin-out.

The startup originated in a private technological centre and three of the people that are currently at the startup came from this research centre. The company was founded ten years ago and the reason for the funding was the existence of a patent and a European funded project.

The technological centre was organized around projects and one of them was on the respectful treatment of honey using ultrasounds. Once the patent was granted, the project leader and one of the founders founded the startup but kept it on hold until five years later, when Iratxe's wrote a European project to ask for funds to develop the machine associated with the patent.

By 2022 Iratxe became CEO of the startup after 4 years working on it. It was not a decision to become an entrepreneur, but rather of the need to replace her co-founder once she left the position. She got to the position where she is, as CEO of a startup as the effect of a set of events rather than a conscious decision. It was like a wheel that moved and drove her here.

The project

Microfy went ahead until the Covid crisis when the prices of the materials for the machine went up significantly (up to three times), making the machine not really viable from an economic perspective for the honey sector. At the time the founders were already in contact with the honey industry and the people in the industry told them about other problems that they had such as quality analysis.

The founders began to think about developing software and the startup pivoted then to the software option. The software was based on artificial intelligence applied to microscopic images thanks to automated microscopy devices. This pivot done by 2023 meant that the original machine was dropped, and the company focused on the microscope and the associated software.

The new technology also allowed the company to go to other sectors within the agrifood industry to use automated microscopy and artificial intelligence for affordable and simple quality analysis. At this point, Microfy has a commercial product for the honey market as well as developing other products for other markets where their technology is attractive.

The women challenges

At the university, Iratxe found many women in chemical engineering but almost only men in industrial engineering. In her opinion there are degrees that are perceived as degrees for women, or women like them better such as biology and biotech, also in food. In contrast, there are fewer women in electronics and software. This mix then translates into startups.

As a CEO maybe the need to balance work and family has had an impact.

A STARTUP IS UP AND DOWN. THERE IS ALWAYS A CHALLENGE TO TACKLE

Susana Gómez
Co-Founder of Moa foodtech

The founder

Susana studied biology and did a PhD in the field of microbiology. Then she stayed as a post-doc for a few years because she liked research. But academia was not a stable job, and the opportunity came up of going to a startup in bio-pharmacy. She was there for eight years and she got the bug of starting her own company.

She began to think about business ideas, she even won a few contests, but it did not work. Then Susana partnered with one of her co-founders who had an interesting idea of using sub products to create ingredients through microorganisms. She began helping him until she moved full time.

They are three founders. One is the finance person, the second one is the CEO and has a biochemist background and herself who runs the scientific part. They started with an accelerator program that helped them with designing the business model and viability of the project.

The initial funding came from the founders as well as family and friends, but the company quickly raised a round of funding from private investors and an industrial partner.

The project

The motivation behind the company is to create sustainable ingredients through science and technology and she could only do it through the startup. It was the perfect setting, using science to have a positive impact on society. It is Moa's mission: Innovative solutions for sustainable products.

The success of the startup is timing, it started at a time when alternative proteins became relevant and also the fact that each of the founders has a different background and they complement each other.

Starting from zero, having the product developed and produced, being ready to start selling and also having their first patent (very important for investors) has been a big challenge for the company, and the next one is commercializing the product. It is a new product and there is a lot of communication required for people to know about it and what the value that it brings is.

The women's challenges

Susana considers that there are more women going into technology and startups, although they have not reached yet the top management positions. There are a lot to do with lack of role models or visualizing themselves in this position.

She believes that there are more women going into entrepreneurship, and since she founded Moa, Susana has been active in forums to promote women in entrepreneurship.

I LIKE ENTREPRENEURSHIP, CREATING THINGS, AND MOVING THINGS FORWARD

Lynette Kucsma
Co-Founder of Natural Machines

The founder

Lynette's deep understanding of technology stems from her extensive experience in the field. Her tech journey began at university, where she worked as an assistant in the computer lab while pursuing a degree in marketing. This unique combination of skills enables her to effectively bridge the gap between technology and business.

Throughout her career, Lynette has navigated various tech landscapes, from the era of pagers to the dot-com boom. Her career spans a variety of tech-related roles ranging from startups to Fortune 500 companies, including a notable position in PR at Microsoft. Afterward, she transitioned back into the startup world, eventually co-founding her current company.

Lynette's drive to join a startup was fueled by her familiarity with both the corporate and entrepreneurial worlds. Growing up with a father who ran his own business, she gained early insight into the advantages and challenges of entrepreneurship compared to large corporations.

The inception of her company came from a group of friends, one of whom owned a vegan bakery that faced high costs while expanding internationally. They conceptualized the idea of using 3D printing as a solution, creating a localized production model without the need for substantial factory investments. Another co-founder brought valuable tech expertise, rounding out the founding team's skill set.

The project

Initially, the project aimed to make vegan cakes using capsules, similar to Nespresso pods, using 3D printers designed by the company specifically to work with food. However, even though the cakes were vegan, they aren't considered healthy. The occasional treat is fine, but Lynette is also passionate about healthy eating. So she led the company to pivot to a new concept of 3D printing all types of savoury and sweet food without the mandatory use of pre-filled capsules, making it easier and faster to create healthy foods made with fresh ingredients.

The company collaborates with major companies around the world, and the resulting partnerships significantly expand the startup's market reach. Over its decade-long existence, the company has secured success with both customers and investors. Despite the challenges posed by the capital-intensive nature of hardware development compared to purely software-based tech, the company continues to progress, underscoring its resilience and potential in the market.

The women challenges

At the university, Iratxe found many women in chemical engineering but almost only men Despite an increasing number of women studying technology at universities, the industry remains challenging, notes the female founder of Natural Machines. There is a significant gender imbalance in leadership roles and funding opportunities, with tech being predominantly male-dominated.

Addressing these issues requires more than training resources, which is often the default solution offered. While training, mentors, and courses are beneficial, what women truly need are financial support, visibility, and backing to succeed. However, identifying effective resources to achieve this remains a challenge.

BE PERSISTENT AND DON'T LET THE CIRCUMSTANCES BRING YOU DOWN

Sònia Hurtad
Co-Founder & CEO of Poseidona

The founder

Sonia's motivation was her passion for what she had been doing for many years and having her own startup. Sònia comes from a food technology background all the way to her studies at university.

She has been in the food industry for twenty years, mostly in R&D roles and, for about thirteen of those years, she worked in finding alternatives to food of animal origin like meat, fish, milk, and egg. Her PhD studies were about reusing proteins from pig blood; however, she realized that her personal preferences were about doing something for animals rather than exploiting them as she was doing.

So, she dropped her research and looked for projects related to vegan alternatives to animal food. Sonia worked in a startup that pioneered 3D printing of vegan food, helped as a freelance to set up another one and finally she co-founded her own San Francisco-based startup in the role of technical director.

This startup was selected into Y-Combinator and received about $7 million in initial funding and then another $20 million a couple of years later, but having so much money requires having a very clear plan of how to execute, and also she learned that if you can avoid investing in Capex and instead finding the right manufacturing partnerships is better because the value of a food tech startup is in its capacity of innovation and developing industrial property.

The project

When Sonia went back to freelance, this time in Barcelona, one of her clients gave her the idea for Poseidona. The client worked with algae and produced a by product rich in proteins, but the client did not use it and told her that if she found any value in it, she was free to use it.

Her co-founder María Cermeño came from academia but had just landed in Barcelona looking for opportunities and she liked the technology because she was familiar with. So, she joined and is happy. They work well together and communicate intensely.

Poseidona has been self-funded for a year. They worked without salary for six months. The first financing round was expected to close sooner than it happened and for a while, investors funded the startup through convertible debt, while waiting for the closing of the round. The company used the funds to advance its R&D.

The startup has a plan in terms of developing the technology over the next few months, then go to market, and as a third phase target larger companies of ingredients to have our protein in their portfolio.

The women's challenges

Certain investors also have a bias towards being more receptive to men's presentations and interactions, which puts women at a disadvantage.

Having more women in deep tech startups needs to start at the school and with parents, early in the lives of kids. Communicate the right values from early on.

**Women Founders
in European Deep Tech
(WIDT) European Startups**