intel ignite | Beauhurst

# State of UK Deep Tech

2024

# Contents





## Foreword

The United Nations Development Programme defines deep tech as “cutting-edge and often disruptive technologies built on profound scientific discoveries, engineering innovations, or research advancements with the potential to transform industries, economies, and lives.” This transformation is no longer hypothetical; it is happening here and now, driven by the UK’s vibrant and rapidly expanding deep tech sector.

Deep tech founders are pioneers, venturing into unexplored territory with resilience and vision. There are over 5,800 active deep tech companies in the UK, many emerging from prestigious institutions in the Golden Triangle formed by London, Oxford, and Cambridge. With foundations in academia and research, these founders are driven by knowledge and purpose, applying unique insights to create technologies that will reshape our future.

The influence of these startups is already evident. Since 2014, UK-based deep tech companies have secured over £37.9b in equity funding, with record-breaking levels achieved in recent years. In 2023 alone, the sector attracted £672m in grant funding across nearly 1,500 awards, reflecting strong support from both private investors and public bodies. Intel Ignite’s accelerator programme, which expanded to the UK in 2023, has further amplified this momentum by supporting startups that have collectively raised over £134m in total funding to date.

The potential impact of deep tech mirrors the seismic shifts of past innovations that once redefined society, from electricity to the internet. Today, we see similar groundbreaking work in artificial intelligence, CleanTech, and quantum computing, where over 30% of UK deep tech companies are concentrated. These deep tech companies are not just advancing technology; they are addressing global challenges like climate change and energy efficiency. It is estimated that by 2035, artificial intelligence alone could boost the UK’s GDP by £550b, underscoring the economic stakes at play.

The startups featured in this report are at the forefront of a revolution, sowing the seeds of future technologies that will soon become indispensable to daily life. By igniting new possibilities and reshaping industries, they lay the groundwork for a future where today’s deep tech innovations become the foundational technologies of tomorrow.

**Ofer Shayo**
Managing Director
Intel Ignite London

## Introduction

The first part of this report offers an overview of Intel Ignite's global and London-based accelerator programs, showcasing key achievements of cohort companies, including equity raised and acquisitions, along with valuable insights gathered from participant feedback.

The second portion of the report delves into the current state of the UK's deep tech sector. Using Beauhurst data, it explores the regional distribution of deep tech companies, highlights prominent sub-sectors and emerging areas, and tracks innovation trends. The report also offers a detailed analysis of private and public investment flows into deep tech companies, providing key insights into the sector's financial landscape.

The deep tech section also features firsthand insights from Intel Ignite's London programme participants, offering a deeper understanding of the programme's impact and participants' perspectives on the UK's deep tech landscape. By combining these reflections with a broader analysis of the sector, the report underscores the critical role of accelerator programmes like Intel Ignite in driving innovation and growth within deep tech.



## Introduction to Intel Ignite's global accelerator programme

Intel Ignite is an award-winning startup accelerator founded by Intel five years ago. It focuses on early-stage deep tech startups. Twice a year, 10 startups are selected via a highly competitive process to join the 12-week programme that is hosted across the UK, US, Europe, and Israel. Intel Ignite's objective is to fuel a global ecosystem of deep tech innovation by introducing startups to an empowered and diverse network of founders, mentors, domain experts, and investors. For more information about the programme visit Intel Ignite's **website.**

Intel Ignite has a profound impact on the deep tech startup ecosystem. Since launching in 2019, it has accelerated 216 deep tech startups. The global programme's portfolio companies have raised more than $3.5b in funding and acquisitions. These accolades have not gone unnoticed, as Intel Ignite has won four awards between 2021 and 2023. Essential to its success are its three fundamental pillars:

- Frequent in-depth efforts are used to identify high-potential tech startups to engage with using a focused 12-week programme.
- Startups are selected based on strict criteria, ensuring alignment with Intel's strengths and capabilities, as well as high the startup's potential for growth and innovation.
- In the programme, Intel's expert mentors provide strategic guidance, validation, adaptation support, and market expertise, helping startups refine their ideas and adapt to market demands.

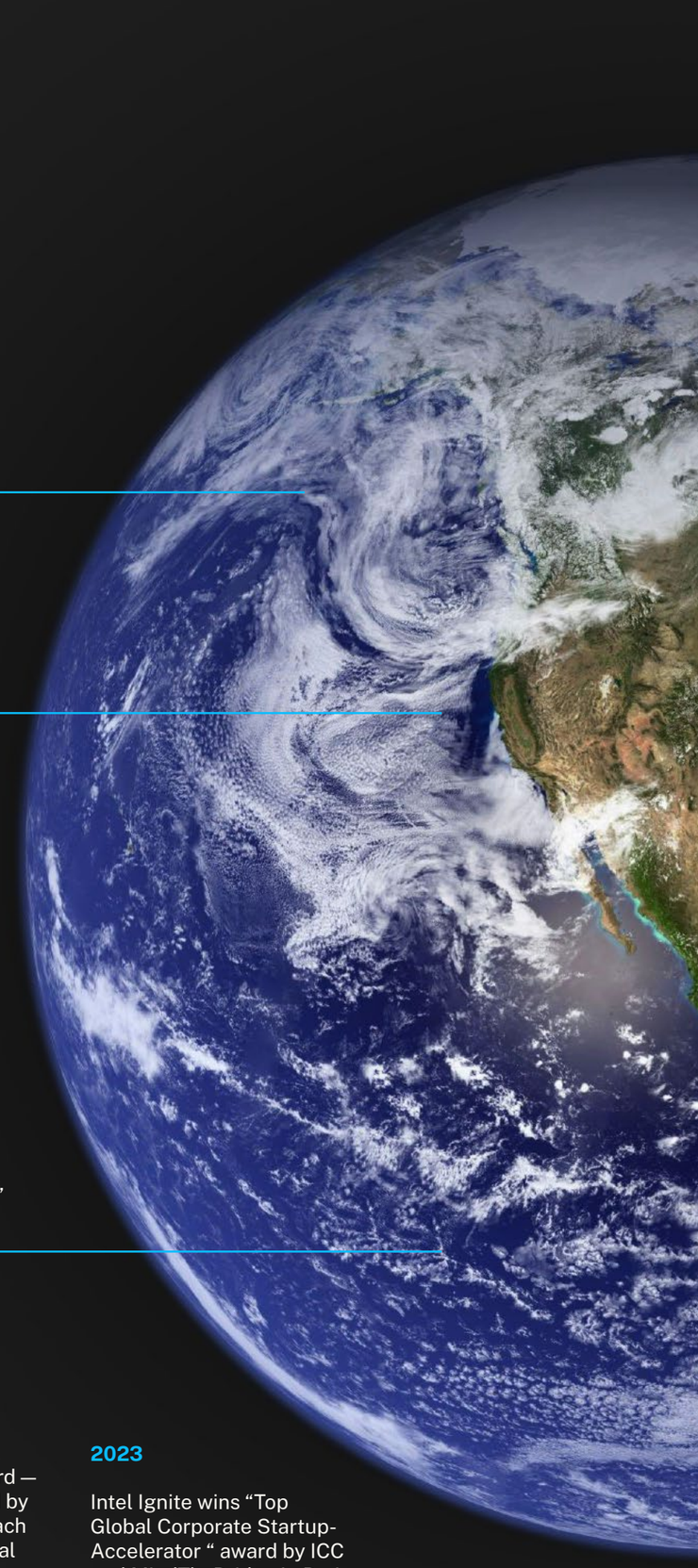
## Highlights and achievements of the Intel Ignite's global programme

**216**
deep tech
startups accelerated

**$3.5b**
in funding
and acquisitions

### Notable Intel Ignite alumni acquisitions:

- Granulate, a workforce performance optimisation company uses artificial intelligence to cut computing costs and server usage. It was acquired by Intel for **$650m**
- Deci AI, an end-to-end deep learning and development platform acquired by Nvidia for **$300m**
- Qwak, a platform that simplifies and automates the creation of tailored artificial intelligence and machine learning solutions, acquired by JFrog for **$230m**



### Awards

**2022**

Secured "Best of Show" presence at the Web Summit, Europe's largest startup-developer event

**2022**

Recognised by Intel with the Intel Achievement Award — an award provided by the CEO of Intel each year for exceptional achievement

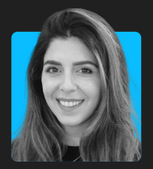
**2023**

Intel Ignite wins "Top Global Corporate Startup-Accelerator " award by ICC and MindTheBridge in Paris

## The Intel Ignite London team

**Ofer Shayo**
Managing Director,
Intel Ignite London

**Kevin Crain**
CTO,
Intel Ignite London



**Senam Payandeh**
Programme Manager,
Intel Ignite London

**Rockman Law**
Deal Flow & Portfolio Manager,
Intel Ignite London

**Vittoria Bonera**
Operations & Site Manager,
Intel Ignite London

## UK based companies from the Intel Ignite Europe programme

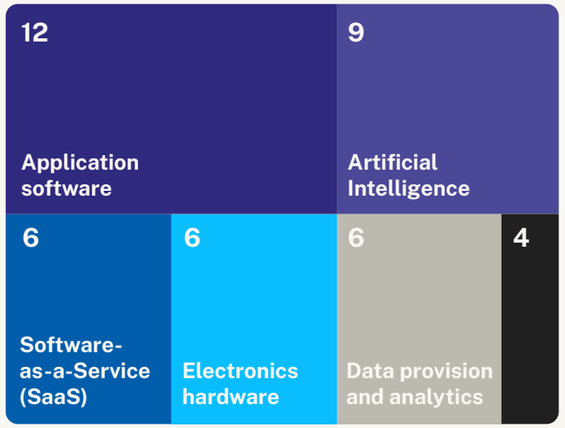
The European Intel Ignite programme launched in 2020. Its first cohort graduated in the Spring of 2021. Based in Munich, seven cohorts of deep tech startups have passed through the 12-week programme. Of the 70 companies that have participated in the programme to date, seven were based in the UK.

## Intel Ignite London programme

The Intel Ignite programme expanded into London in 2023. Since then, Intel Ignite has produced two cohorts from its London office. In both cohorts, there were over 200 companies that applied to take part in the 12-week programme. Only 19 firms were selected, including nine in the September 2023 cohort, followed by 10 in the second cohort in April 2024. The selected companies span a diverse range of deep tech sub-sectors, including artificial intelligence and machine learning, large language models, data, cloud and edge computing, next-generation computing, security and privacy, autonomous technologies, and robotics.

### Top sub-sectors identified in Intel Ignite's London cohorts

Top sub-sectors identified in Intel Ignite's London cohorts




## Intel Ignite London Programme cohort companies

### London cohort 1

Crypto Quantique · LGN · Finchetto · Skippr · Apoha · Lumai · Unify · VyperCore · Vaultree

### London cohort 2

OctaiPipe · QuestDB · Tenyks · HoloMem · Stanhope AI

Vaire Computing · Skitelight · RevEng.ai · LightHearted AI · Solve Intelligence

### UK based Europe cohort

Space Forge · Deep Render · TitanML · TurinTech · Quantum Dice · dRISK · Signaloid

**Summary statistics for Intel Ignite UK companies**

This section outlines the investment amounts and deal numbers secured by UK-based companies participating in Intel Ignite programmes. The breakdown provided shows the data before and after being part of Intel Ignite's accelerator programme, as well as testimonials from the participants. For further insights into the cohort participants' experiences, please visit Intel Ignite's **website.**

> Artificial intelligence has of course been dominating the conversation in tech, but maximising the value of this powerful technology requires finding applications for it that can contribute to solving some of the world's biggest problems. And that's exactly what the startups in this cohort [cohort 2] are doing, whether that be through developing medical devices that provide diagnoses in seconds, making software more secure, or increasing the energy efficiency of next-gen compute, devices and data centres.
>
> **Ofer Shayo -** Managing Director, Intel Ignite London

## Combined Cohort

| 26 | £134m | 53 | £2.54m |
|---|---|---|---|
| Companies | Total funding received (2016 - 2024) | Total number of deals (2016 - 2024) | Average deal size |

### London cohort 1 impact

**9**
Companies

**£50.7m**
Funding received (2016 - 2024)

**19**
Number of deals

**£21.8m**
Funding received after joining the programme (since September 2023)

### London cohort 2 impact

**10**
Companies

**£32.2m**
Funding received (2020 - 2024)

**17**
Number of deals

**£4.21m**
Funding received after joining the programme (since May 2024)

### UK based Europe cohort impact

**7**
Companies

**£64.4m**
Funding received (2019 - 2024)

**19**
Number of deals

**£47.9m**
Funding received after joining the programme

> I was very impressed by the amount of time and attention given to us by not only the program mentors but also the most relevant AI and hardware teams at Intel more broadly. On top of the important lessons learned and the amazing founder networks, the opportunity to build a meaningful partnership with Intel is very unique, and this far exceeded my expectations.
>
> **Daniel Lenton**
> Founder & CEO of Unify

> Intel Ignite is a true accelerator. It came in and drove our company's mission faster than we expected. I didn't realise that we'd make so much progress in these 12 weeks.
>
> **Prof. Rosalyn Moran**
> Co-founder and CEO of Stanhope AI

01

# The UK deep tech sector

This section covers an overview of the deep tech sector in the last 10 years. It provides an overview of the regional distribution, sub-sectors, equity investment, growth and innovation, and insight on what the future holds for the UK's deep tech sector.

## The definition of deep tech

While there is no universal definition of deep tech, the term generally refers to a broad and evolving category of technologies driven by significant innovations in engineering and science. Unlike traditional tech companies, deep tech firms are distinguished by their focus on groundbreaking advancements in fields such as artificial intelligence, biotech, quantum computing, and advanced materials. Deep tech companies are capital, time, and research and development (R&D) intensive, often requiring significant investment and long development cycles to bring transformative products to market.

The companies identified in this report operate in deep tech sub-sectors and have met high-growth milestones as defined by Beauhurst. This approach prioritises technology-specific criteria over Standard Industrial Classification (SIC) codes. SIC codes are used to identify some companies in the deep tech sector that have received public investment. A 10-year age limit is applied to ensure the focus remains on newer, scaling firms. This method assesses the performance of the UK's deep tech sector while excluding older companies that may have shifted from their original focus. Full details of the definition are on **page 30.**

## Key findings

**5,841**
active deep tech companies

**2,554**
deep tech companies have secured over $1m in equity funding

**4,181**
deep tech companies have secured over $100,000 in equity funding

**3,099**
deep tech companies have raised grant funding

**946**
active deep tech spinouts

**£672m**
awarded via 1,469 grants in 2023

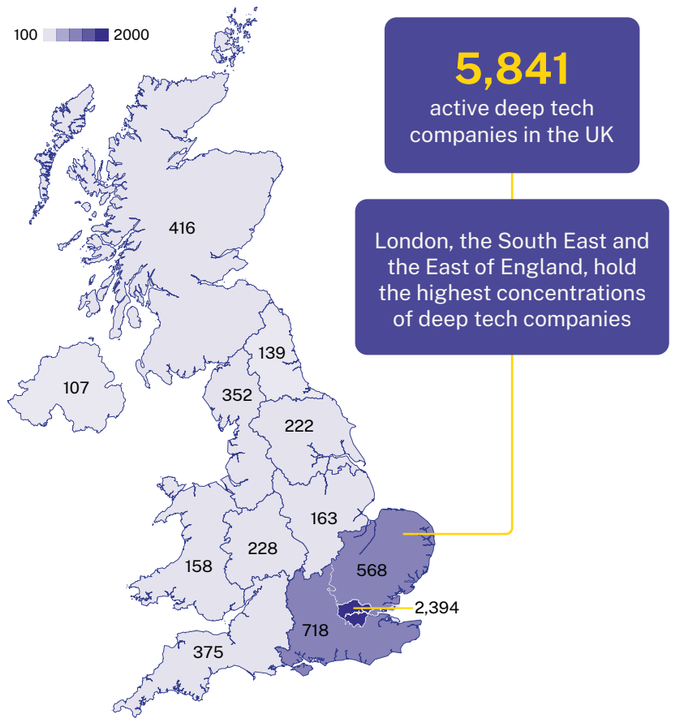
**30.7%**
patents granted (10.7k in total) between 2014 - 2023

## Regional distribution

The UK's deep tech sector is predominantly concentrated within London and the surrounding regions, reflecting the area's rich resources and academic excellence. London leads with the highest number of deep tech firms, driven by its dense population, an abundance of top-tier universities, and a robust ecosystem that includes ample funding opportunities and accelerator programmes, such as Intel Ignite. The city's connectivity to global hubs via Heathrow and other major airports facilitates the flow of people, ideas, and capital, reinforcing its role as an international gateway for technological advancement. London's dynamic environment attracts top-tier talent and offers the infrastructure that deep tech startups need to scale and succeed.

Extending from London, the golden triangle—comprising London, Oxford, and Cambridge—serves as a powerhouse for deep tech innovation. This area is home to some of the world's most prestigious universities and research institutions, which act as incubators for cutting-edge technologies and spinout companies. The synergy between academia and industry in this region contributes significantly to the UK's leadership in sectors like biotechnology, life sciences, and artificial intelligence.

**Regional distribution of active deep tech companies in the UK (September 2024)**



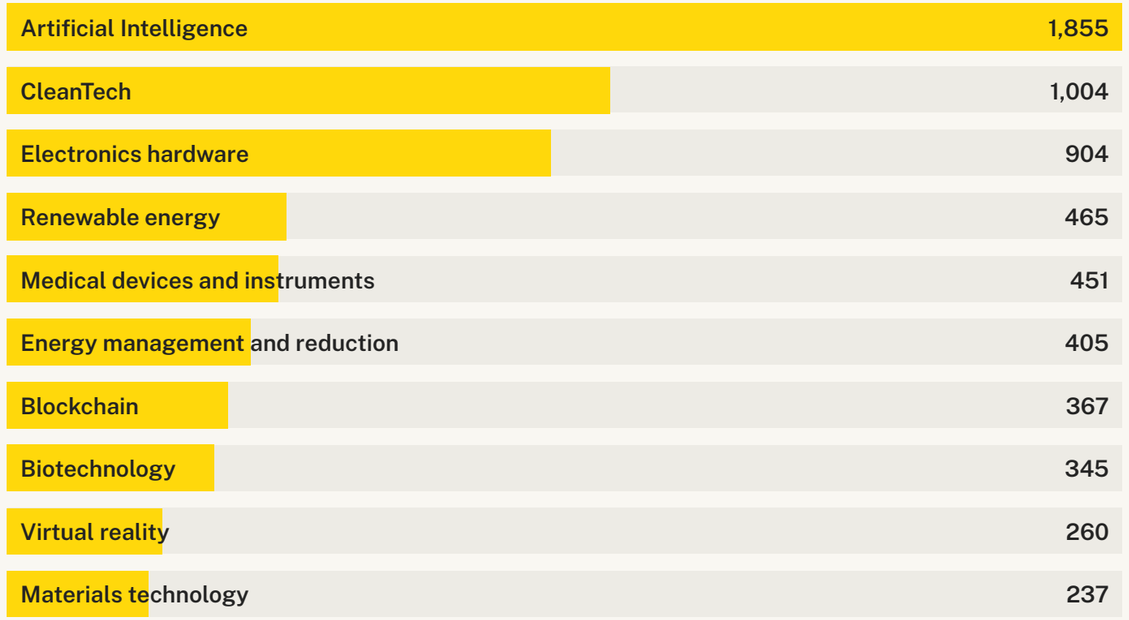

Scotland emerges as another key player, boasting a high concentration of deep tech companies, particularly in life sciences. The region's strong funding environment and cluster of reputable universities underpin its growing ecosystem. Similarly, the North West, anchored by Manchester, reflects a sizeable deep tech presence. Manchester's strong tech scene and academic institutions continue to nurture talent and foster industry growth.

## Top sub-sectors

The sub-sectors shown in the chart specifically relate to the sub-sectors that this report uses to identify deep tech companies. The full list of sub-sectors is provided on **page 30.** Artificial intelligence tops the chart with 1,855 active companies operating in this sub-sector, this figure is equivalent to 31.7% of active companies in the deep tech sector. This significant proportion highlights the rise of artificial intelligence being used by companies across a broad range of sub-sectors, this is only expected to rise as the Fourth Industrial Revolution unfolds.

CleanTech is the next top sector. The push to address environmental issues and to achieve net zero has led to demands for this sub-sector. Energy reduction and management works in combination with the CleanTech sector to help address these goals. It is likely that companies operating in these sectors will continue to grow. The new Labour government has increased the funding for its upcoming clean energy auction from £500m to £1.50b. This increases the funding for developers looking to move forward with renewable energy projects.

**Top sub-sectors within the deep tech sector by number of active companies (September 2024)**




## Overview of emerging sectors

### Quantum

Quantum refers to advanced technology that leverages quantum mechanics to enhance computing power, encryption, and data processing. The UK government has committed to supporting the quantum industry, with £100m committed to establishing five quantum technology hubs across the UK.[1] One company in the field is Oxford Quantum Circuits. The University of Oxford spinout develops quantum computers using superconducting circuits.

Quantum computing has applications across sectors such as drug discovery, cybersecurity, and financial modelling. Oxford Quantum Circuits has raised £126m in equity funding since 2017.

### Robotics

Robotics has a large potential to create global economic growth. The Department for Science and Technology (DSIT) estimates that a 30% boost in robot installations is projected to add $4.90t to the global economy by 2030.

While traditionally linked to manufacturing, robotics is expanding into sectors like agriculture, healthcare, and space exploration.

An example is Lodestar Space which develops technology for in-orbit 3D printing, with the aim of building large structures in space.

### Augmented reality

Augmented reality (AR) involves the use of computer-generated images to show users a version of the real world that is enhanced with digital information. One company utilising this technology is Envisics, a Milton Keynes-based firm developing holographic technology and head-up displays (HUDs). This technology displays information within the driver's field of vision as an augmented reality of the real road environment. In 2023, the government backed 67 transport technology projects with each receiving a share of £1.96m in funding. Among these projects was Makesense Technology which developed an app that utilises AR to create walking routes to help the visually impaired navigate railway stations.[2]

[1] UK Government, "Over £100 million boost to quantum hubs to develop life-saving blood test and resilient security systems", UK Government, 26 July 2024, accessed **from.**

[2] UK Government, "Nearly £2 million to fund innovative transport tech including apps to assist disabled passengers", UK Government, 6 June 2023, accessed **from.**

## Growth and innovation

Profiles on some of the fastest scaling deep tech start-ups by headcount growth (using a compound annual growth rate between 2020 - 2023)

**BigSIS**

2020
**1 employee**
2023
**40 employees**

BigSis is developing artificial intelligence and robotics technology to manufacture non-chemical insecticides for agriculture and commercial applications. The Reading-based company has combined biology, engineering, and artificial intelligence to produce sterile male insects. These insects are released into the wild to reduce the population's ability to expand.

**PQShield**

2020
**11 employees**
2023
**32 employees**

Oxford-based PQShield develops cybersecurity technology designed to withstand the future threats posed by quantum computing. The company spun out of the University of Oxford in 2018. Leveraging advanced post-quantum cryptographic algorithms, the company develops technology that protects systems across hardware, software, and cloud environments.

**Dexory**

2020
**7 employees**
2023
**26 employees**

London-based Dexory develops AI-driven robotics to transform warehouse management. Their platform deploys fully automated robots to navigate warehouses, providing real-time inventory tracking. The data collected integrates seamlessly into Dexory's analytics platform to identify bottlenecks, boost productivity, and accurately forecast demand, stock levels, and capacity.

**Springbok AI**

2020
**1 employee**
2023
**16 employees**

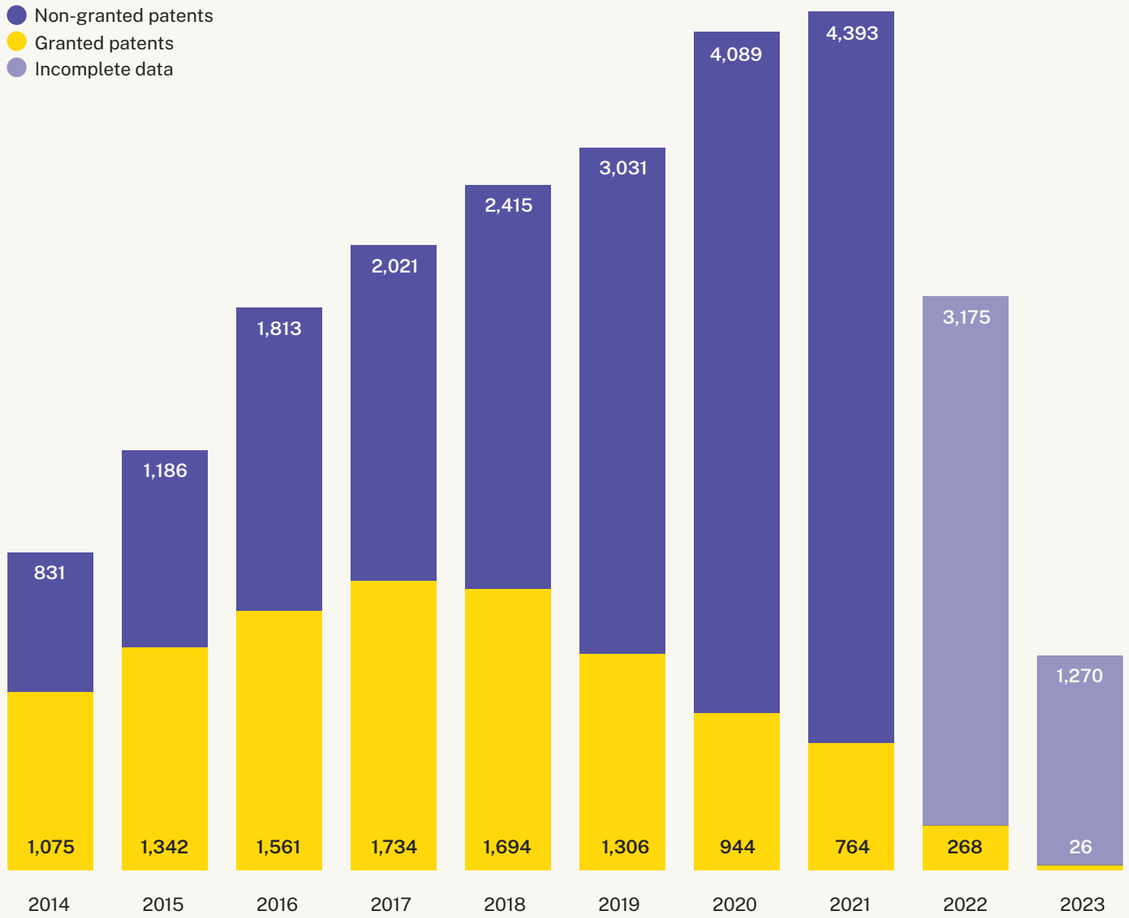
Springbok AI develops artificially intelligent software, provides machine-learning consultancy, and data analysis services. The London-based firm's latest product is focused on the legal services industry, allowing firms to build and deploy customised generative AI tools that can reduce the amount of time companies spend using lawyers.



## Patents

From 2014 to 2023, deep tech companies in the UK submitted 34.9k patent applications, of which 10.7k (30.7%) have been granted to date. This significant level of patent activity illustrates the inherently innovative nature of the deep tech sector. Patents serve not only as protection for technological breakthroughs but also as a crucial factor in establishing a competitive advantage. For investors, a company's patent portfolio may offer key insights into its innovation pipeline, potential market influence, and long-term strategic direction. Among the companies filing the most patents is GSK Bioelectronics, a medical research firm developing bioelectronic treatments for chronic diseases. Located in Stevenage, the company emerged from a partnership between GlaxoSmithKline (GSK) and Verily Life Sciences (formerly Google Life Sciences) in 2016. GSK Bioelectronics holds 46 granted patents and has won innovation grants from Innovate UK. In 2021, there was a surge in deep tech patent activity, with 5.16k applications filed and 764 granted patents. The 2022 and 2023 figures show a decrease in applications and granted patents so far. However, this does not represent a slowdown in innovation—the full scope of the 2022 and 2023 filings remains unclear due to the 18-month confidentiality period before patent applications are made public. As such, the lower numbers for these years are likely caused by a delay in disclosure rather than a reduction in innovation activity.

**Number of patents filed by deep tech companies (2014 – 2023)**



## Growth and exit trends in the deep tech sector

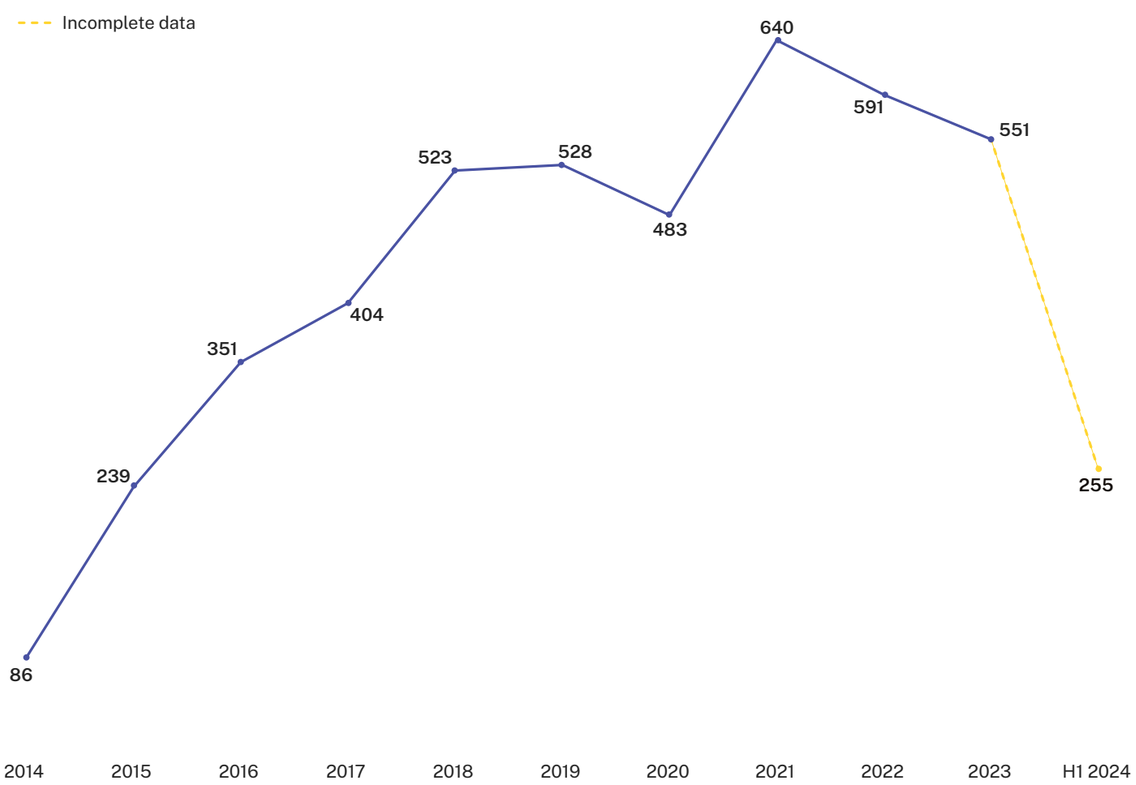
The chart illustrates the count of first-time fundraising rounds secured by deep tech companies between 2014 and the first half of 2024. This data reflects the growth in the sector, where companies seek to secure capital early in their lifecycle. A key point is that a company can only raise first-time funding once, which makes this metric an indirect indicator of the number of new entrants in the market.

From 2014 to 2019, the data shows a steady upward trend, with a significant jump from 86 companies in 2014 to 528 in 2019. This upward trajectory highlights the sector's expansion as more companies entered the market and sought funding to accelerate their development.

The impact of the pandemic is evident in the period from 2020 to 2023. There was a decline in 2020 from the pre-pandemic peak in 2019, with the partial recovery in 2021 likely the result of investment incentives provided to offset the negative economic impact of the pandemic. While 2022 and 2023 show a declining trend, the count of first-time fundraising deals are higher than the pre-pandemic peak in 2019. The outcome of the full year of 2024 data will help clarify the post-pandemic growth trend in the deep tech sector.

A positive trend is the rise in deep tech company exits, either through an acquisition or IPO. The deep tech sector saw consecutive record-breaking years in 2021 and 2022, with 155 exits collectively. This reflects the growing maturity of the deep tech ecosystem, with UK firms attracting local and international buyers due to strong intellectual property.

**Count of first time fundraising (2014 - H1 2024)**






## Case Study: Vaire Computing

Vaire Computing is a company pioneering a new computer chip architecture designed to significantly improve energy efficiency. Traditional silicon chips waste energy as heat when transistors switch between states but Vaire's architecture aims to recycle this energy, reducing operational costs and enhancing overall system efficiency. Vaire is pushing boundaries in the tech industry by tackling the inefficiencies of classical computing architectures, potentially shaping the future of energy-efficient computing.

**How did being part of Intel Ignite's accelerator programme help the success of your business?**

"We are in a unique situation because we are a chip company pioneering a new computing architecture, so there isn't a blueprint for that. Intel being one of the few companies that has actually done it was super useful to us to define our product."

"We came to the program with our technology. Going from a technology to a product is fairly significant. Our chip works slightly better, and you want to build something with one million transistors, how do you ship within the form factor of how valuable it is? Intel Ignite gave us their perspective on these processes."

"Intel makes chips, so the advice we got was from people that actually make this stuff, day in, day out, so for us that was super helpful. We also got put in touch with some people who were not from Intel originally, but had been acquired [by Intel]. So they had the expertise of a startup. It was super interesting, we got a lot of pushback on certain things, and so we carried through each week trying to figure out where the opportunity was."

"The team in London put us in touch with the team in Israel. And there were some other discussions that relate to business development and fundraising that were really helpful. They put us in front of the senior leadership team at Intel, which was also super helpful"

**What is the future outlook of the UK's deep tech sector? What challenges do you see in the future?**

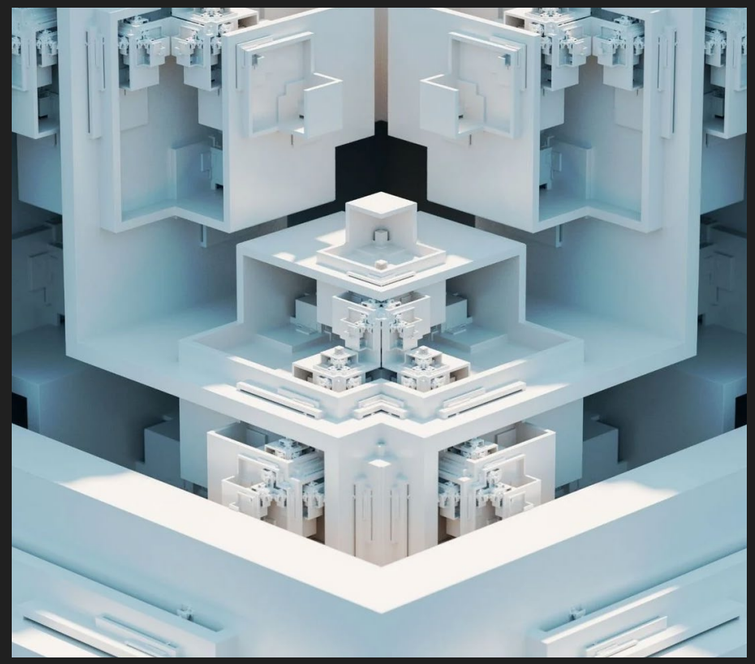
Rosini is optimistic, although he sees the UK's deep tech sector as lagging behind the US. "The UK is more promising than the rest of Europe but worse than the US. Whilst the UK is punching below its weight, business is more fluid in the UK than compared to the rest of Europe."

He identifies key challenges for UK firms, such as access to capital and the need for some companies to relocate to the US for better growth opportunities. Beyond capital, Rosini believes that access to natural resources is a critical factor that supports scalability by reducing prices, making US operations more capital-efficient.

Addressing other benefits of the US, Rosini also highlights a favourable tax regime compared to the UK and expresses concern over the UK's potential increase in capital gains tax, warning that it could hinder innovation. He advocates for greater support for innovative companies in the UK:

> **Creators should be incentivised rather than punished.**

**Rodolfo Rosini**
CEO and Founder
Vaire Computing



Source: Vaire Computing

## Case Study: **Crypto Quantique**

Crypto Quantique focuses on Internet of Things (IOT) device security. These are devices that send and receive data via the internet that are embedded in everyday objects. The company addresses the vulnerabilities exposed by the Mirai attack that was first seen in 2016. The attack involved the hijacking of vulnerable IOT devices with malicious malware that can turn them into bots. The attack took down several high profile services, with the bots launching distributed denial of service (DDOS). As a result of these attacks and the growing number of IOT devices, Crypto Quantique pioneered a unique solution using quantum tunnelling to create physical unclonable functions, enhancing cryptographic key management directly at the chip level.

Beyond hardware, Crypto Quantique offers tools that simplify the implementation of security for software developers. Its platform streamlines the integration of on-device security features, eliminating the need for deep cybersecurity expertise. Together, Crypto Quantique's hardware and software solutions enable secure and verifiable end-to-end connections, from chip to cloud.

"Our service allows you to be able to trust the hardware in a cryptographic way, which means you can test it, verify it, and trust it. We then give you the tools to write a piece of software that is secure." explains Shahram Mossayebi co-founder and CEO of Crypto Quantique.

**How did being part of Intel Ignite's accelerator programme help the success of your business?**

Reflecting on the benefits of the Intel Ignite programme, Mossayebi highlighted how the team's first-hand experience is invaluable to founders facing complex challenges. "The most interesting aspect of Intel Ignite for me was the fact that it was run by ex-entrepreneurs. Everyone involved in the programme in one way, way or form or shape, had done it before. From a founding perspective. The challenges that Patrick and I went through in the past couple of years and the challenges that we see ahead, the ex-entrepreneurs running the programme had been through already. So just hearing their experiences and lessons, and how they went about solving those problems was very valuable, and that helped massively."

The Intel Ignite programme provided crucial insights and validation for Crypto Quantique, "it helped us commercially to gain better understanding into the ecosystem. The fact that we could easily speak with experts in different parts of Intel, and either just ask questions and get feedback about the product or validate whether the problem that we are solving makes sense or not, and how else they would go about doing these things, so I thought that was very valuable as well," said Mossayebi.

Patrick Camilleri, co-founder and VP of operations at Crypto Quantique, emphasised the strategic insights gained from collaborating with a hardware leader like Intel. Crypto Quantique had previously guided by software led firms, using Intel's advice sharpened its approach when engaging with hardware companies, leading to an enhanced product market fit.

**What is the future outlook of the UK's deep tech sector? What challenges do you see in the future?**

Mossayebi outlines the fundamental challenges for Crypto Quantique. "For a startup to thrive, an environment needs at least three factors: talent, investors willing to take the risk, especially in deep tech, and an operational environment that supports growth." Mossayebi believes that the UK's withdrawal from the EU has reduced the availability of skilled quantum workers. "Talent wise, it was very good, before Brexit. Now we are struggling. We've started hiring people in Europe, which is costing us more," says Mossayebi. Camilleri agrees that access to talent is a major issue and the UK's investment landscape can be equally challenging. Mossayebi explains, "The investment when it comes to the growth stage is very rigid. Investors are less aware that our type of businesses will take longer to hit requirements that they have in mind for a software company."

Camilleri also highlights the UK's lack of support for the semiconductor sector. "UK public bodies are disconnected from reality when it comes to semiconductors. They think you can manufacture chips in the UK, whereas that's not really the case." Evidence of this, Camilleri references a grant application that was denied because it would not allow Crypto Quantique to manufacture semiconductors outside of the UK. Camilleri does not believe the UK is competitive for the semiconductor sector compared to the US or Asia–Pacific. Mossayebi believes a core challenge for Crypto Quantique is to scale in a business landscape where talent and funding is difficult to secure. "The question is, how are we going to grow the company in the UK, because the right tools and resources are not always available." While UK government policies have offered some support, particularly in early-stage funding, Mossayebi finds this insufficient for long-term growth. "The only place I would say UK policies helped is around the early stage funding." Referring to the SEIS and EIS schemes that are available.

Despite some limitations, Mossayebi recognises the advantages the UK offers. "There are a lot of things right here—the talent, the resources, the geolocation, the language, the universities." However, he questions whether these strengths are enough to support the company's global ambitions. "Can Crypto Quantique grow into a giant company, or are we going to eventually get acquired for a small amount by a giant American firm?"

**Dr Shahram Mossayebi** (CEO & Co-Founder) and **Dr Patrick Camilleri** (VP of Operations & Co-Founder) of Crypto Quantique

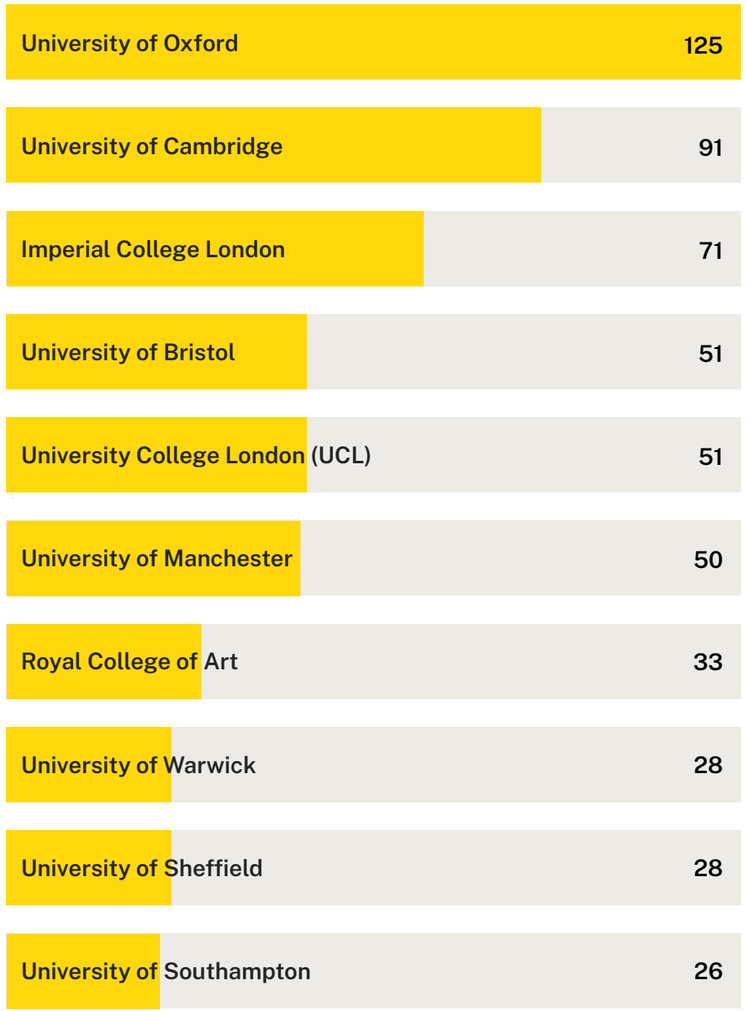


## Top origin institutions for deeptech spinouts

UK universities play a pivotal role in the deep tech ecosystem through the creation of spinouts. Deep tech spinouts account for 13.7% (946) of the total number of high-growth deep tech firms in the UK. The University of Oxford is the top origin institution for these firms, with a total of 125 spinouts. The University of Oxford's commitment to fostering innovation is evident, having hosted initiatives such as a deep tech showcase in June 2024, which aimed to connect spinout founders with investors. One notable example from the University of Oxford's spinout portfolio is Newrotex, a company developing silk-based stents used for nerve repair. Since its inception in 2019, Newrotex has raised £860k through three equity rounds and secured an additional £2.64m via five grants.

Following the University of Oxford, the University of Cambridge and Imperial College London also rank highly for deep tech spinouts. The concentration of spinout activity within the so-called "golden triangle"— Oxford, Cambridge, and London—has played a pivotal role in attracting substantial investment to this area. Outside of this southern cluster, the University of Bristol stands out as another major hub for deep tech startups. Bristol shares the fourth position in spinout rankings with University College London, with each having produced 51 spinouts as of September 2024.

**Top origin institutions by number of deep tech spinouts (September 2024)**



## Case Study:
## **Tenyks**

Cambridge-based Tenyks has developed a visual search engine that enables clients, such as Fortune 500 and large global enterprises, to extract insights from vast amounts of video data. Its technology allows users to identify specific visual elements—such as consumer behaviour in retail analytics, workers involved in accidents, or spill hazards—from raw sources such as CCTV, satellite, and media footage. Essentially, Tenyks leverages machine learning to transform previously unstructured data into valuable, searchable information.

**How did being part of Intel Ignite's accelerator programme help the success of your business?**

"Intel Ignite has given us access to an incredible network within the London deep tech ecosystem," says Botty Dimanov, CEO and co-founder at Tenyks. Attending events and speaking opportunities has been transformative for Tenyks, significantly enhancing its ability to generate investor interest and boost the company's credibility among prospective employees. Dimanov also underscores the benefits of accessing top office spaces and connecting with a diverse array of experts, which have been instrumental in recruiting key talent for Tenyks who have "substantially changed the trajectory of the business," he says.

He further points out that the coaching and seminars helped Tenyks change its business strategy and build a substantially better, future proofed business." Dimanov states that another key aspect of the programme was the access to insights from Intel's internal strategy obtained directly from the CIO, CTO, head of cloud, and from industry leaders. This helped Tenyks anticipate what industry leaders see as opportunities and threats in the emerging system.

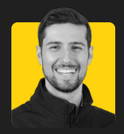
Dimanov concludes that the greatest benefit of Intel Ignite for Tenyks has been the access to Intel's wider Partnership network via the mentorship program. The ultimate result was a critical partnership with a GSI that would have otherwise taken half a year to establish.

**What is the future outlook of the UK's deep tech sector? What challenges do you see in the future?**

According to Dimanov, the future of the UK's deep tech sector hinges on short-term policies. He outlines that while the UK benefits from a regulatory environment that is "not overly strict"—particularly when compared to measures like the EU AI Act—he cautions that increases in corporate tax burdens and capital gains tax may reduce entrepreneurs' motivation to start new ventures.

The UK's strength lies in its seed-stage fundraising ecosystem, referring to the SEIS and EIS schemes which Dimanov says helped Tenyks in its early stage. However, beyond the seed stage, the UK's environment becomes less supportive according to Dimanov. He explains "The UK needs to find ways to encourage innovation, and try to reduce the number of companies that are seeking to raise capital and follow-on funding from the US."

Looking forward, Dimanov anticipates some challenges stemming from recent economic pressures such as high interest rates. However, he identifies an opportunity in the same economic conditions. In this climate, Tenyks' technology offers businesses a practical way to do more with their existing resources, turning untapped visual data into insights. As firms look to optimise within their constrained budgets, Tenyks is well-positioned to help them gain a competitive edge.



**Botty Dimanov**
CEO and Co-Founder
Tenyks



## Case Study:
## **Stanhope AI**

Stanhope AI develops brain-inspired AI systems that let machines make autonomous, explainable decisions without heavy training data. Launched in 2023, the company is a spinout of University College London (UCL) and King's College London. Stanhope AI's founding team leverages a blend of academic and commercial expertise, including neurology professors Rosalyn Moran and Karl Friston, as well as Dr Biswa Sengupta. Stanhope AI's technology enables AI systems to adaptively learn by continuously updating their understanding of the world, allowing them to make efficient, real-time decisions on small, battery-powered devices like sensors and drones.

**How did being part of Intel Ignite's accelerator programme help the success of your business?**

Intel Ignite provided Stanhope AI with support across three main areas: networking, practical skills development, and mentorship—each instrumental in the company's transition from academia to the commercial tech sector.

For CEO Rosalyn Moran, the programme's networking opportunities were transformative. "We were introduced to different networks throughout the UK, Europe, and the US, helping us understand where we fit in the AI market," she explains. "The programme leaders—Ofer, Kevin, and Rockman—were constantly growing the network, something that is incredibly valuable for a startup coming out of academia, where networks are often more academic than commercial." These connections opened up essential pathways for commercialisation, which Moran describes as a standout feature of the programme. Moran also points to the accelerator's peer network as a standout feature, noting, "There are few programmes that offer a peer network of companies facing similar stages and challenges". Reflecting on the programme's workshops, Moran describes them as "compact and intense", working through startup essentials akin to a "mini MBA". Designed for deep tech founders, the programme provided focused sessions on negotiation, board management, sales development, and marketing, giving Moran practical insights into startup and leadership dynamics. The programme also featured storytelling training, which helped refine Stanhope AI's brand narrative—an essential skill Moran notes "everyone can improve on".

Moran highlights the programme's value in providing mentorship, for Stanhope AI's team and her personal development as a co-founder of a deep tech spinout. She found particular benefit in connecting with former CEOs of embedded software-based companies, gaining insight into the challenges of scaling such ventures.

**What is the future outlook of the UK's deep tech sector? What challenges do you see in the future?**

Moran describes the future of the deep tech sector as positive. She praises the strong infrastructure supporting large tech corporations and startups in the UK, where "the emphasis around getting and creating unicorns is still an ambition".

"The academic system is a massive feeder for innovation in AI in the UK," notes Moran, drawing attention to the world-class talent emerging from British universities and institutions. "There seems to be a lot of capital and activity in the area, particularly from VCs. The universities have really aligned themselves to support spinout technologies, with large VC funds attached to them." Stanhope AI has benefited directly from this ecosystem, with UCL Business—the university's commercialisation arm—facilitating connections to investors like Albion Capital. Reflecting on the future of Stanhope AI within the competitive AI sector, Moran acknowledges both the challenge of standing out in a crowded field and the opportunities this dynamic sector presents. "The challenge of being an AI company is the amount of activity there is in this area. Distinguishing yourself is key," she explains. To set Stanhope AI apart, the team has prioritised early demonstrations that showcase the specialised science underlying their product, reinforcing its unique position within the autonomous technology space.

Moran points out that the funding landscape poses similar challenges, particularly when competing with the US where the capital risk appetite is bigger. This sometimes raises the question of whether the company would fare better in the US, where funding opportunities are readily available. However, Moran observes that global attitudes are shifting and becoming more aligned, which may level the playing field for companies like Stanhope AI in the UK.

**Rosalyn Moran**
CEO and Co-Founder
Stanhope AI

02

# Private and public investment

## Equity investment in deep tech companies

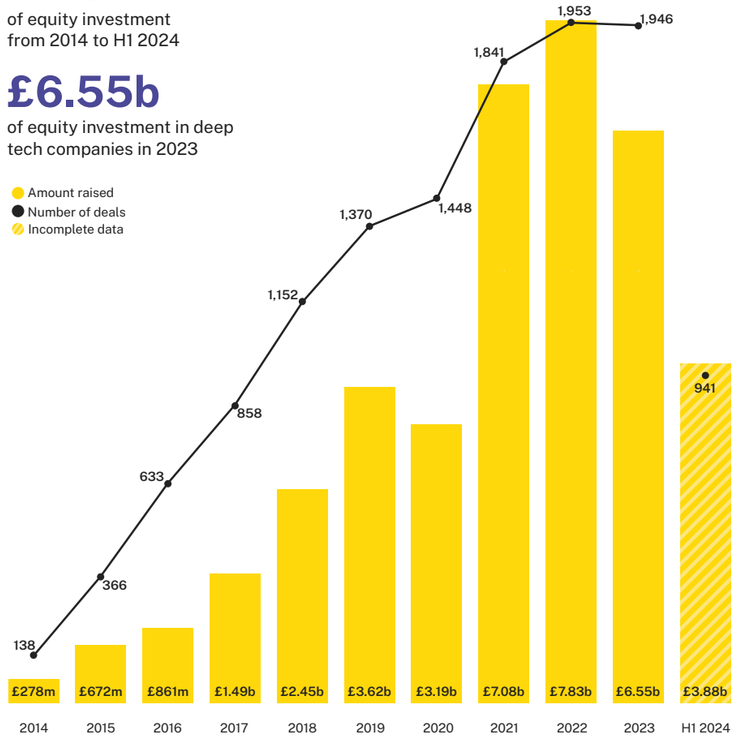
Equity investment in high-growth deep tech companies surged from £278m in 2014 to £6.55b in 2023, representing a significant increase. The number of deals followed a similar trajectory, rising from 138 to 1,946 over the same period. The highest year for investment and deals was 2022, where deep tech companies secured £7.38b in total via 1,953 deals. Among the deals in 2022 was a significant £12.8m fundraising in May by SLAMcore. The company develops spatial intelligence in the form of embedded software that uses data from multiple sensors to help products intelligently understand and navigate the world around them.

In 2023, while equity investment dipped to £6.55b—a 16.3% decrease from the previous year—the total still surpassed pre-2021 levels. Despite the reduction in funding, the number of deals held steady, reflecting sustained investor interest, with 1,946 transactions. A standout deal in 2023 was Zenobē's £792m round, supporting its battery and EV charging point business. The first half of 2024 shows that the momentum in deep tech investment continues. Around £3.88b has been raised so far this year from 941 deals. A deal worth £833m by Wayve in February 2024 constitutes 21.5% of the total raised so far in 2024. This deal is the seventh by the London-based firm, which develops AI-powered technology for self-driving cars.

**Equity investment in deep tech companies (2014 – H1 2024)**

**£37.9b**
of equity investment from 2014 to H1 2024

**£6.55b**
of equity investment in deep tech companies in 2023




## Top VC investors in deep tech companies

Among the most prominent VC investors in deep tech is London-based SFC Capital, which invests in companies that qualify for the Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS). Over the past decade, SFC Capital participated in 304 deep tech deals—278 of which took place in the last five years alone. Among its portfolio is Dubbl, a company developing ultra-high resolution 3D scanning for virtual reality models. SFC Capital backed Dubbl across all four of its funding rounds between 2018 and 2023.

Parkwalk Advisors has also been involved in a significant number of deals in the deep tech sector, participating in 244 deals between 2014 to the first half of 2024. Parkwalk has been part of funding rounds that have totalled a combined £1.56b over the past decade, with 86.5% of this amount invested in the past five years. As the UK's most active investor in university spinouts, Parkwalk manages funds in partnership with universities such as Oxford, Cambridge, Imperial, and Bristol, focusing on high-growth potential in hard science technologies. Included within Parkwalk's portfolio is Paragraf, a University of Cambridge spinout developing graphene-based electronic devices using semiconductor technology. Since its launch in 2015, Paragraf has raised £86.7m in equity via five rounds, four of which were supported by Parkwalk. Among the top three VC investors in deep tech companies is Mercia Ventures, which participated in 236 deals between 2014 and H1 2024. The fund primarily invests in firms outside London and the South East, managing regionally focused funds such as the North East Venture Fund, which supports companies across Tyne & Wear, Northumberland and County Durham.

**Top 10 VC investors by number of equity deals (2014-H1 2024)**

| | |
|---|---|
| SFC Capital | 304 |
| Parkwalk Advisors | 244 |
| Mercia Ventures | 236 |
| Future Planet Capital | 132 |
| Ascension | 130 |
| BGF (formerly Business Growth Fund) | 88 |
| Oxford Technology | 87 |
| Octopus Group | 80 |
| Amadeus Capital Partners | 71 |
| Foresight Group | 67 |

**Top 10 VC investors by value of equity investment (2014-H1 2024)***

| | |
|---|---|
| Parkwalk Advisors | £1.56b |
| Syncona Partners | £1.03b |
| Amadeus Capital Partners | £1.02b |
| Molten Ventures | £915m |
| BGF (formerly Business Growth Fund) | £867m |
| Octopus Group | £824m |
| KKR | £792m |
| IQ Capital Partners | £747m |
| F-Prime Capital Partners | £691m |
| SV Health Investors | £664m |

**Top 10 VC investors by number of equity deals (2019-H1 2024)**

| | |
|---|---|
| SFC Capital | 278 |
| Mercia Ventures | 193 |
| Parkwalk Advisors | 172 |
| Ascension | 106 |
| Future Planet Capital | 101 |
| Oxford Science Enterprises | 72 |
| Octopus Group | 70 |
| BGF (formerly Business Growth Fund) | 66 |
| Foresight Group | 62 |
| MMC Ventures | 53 |

**Top 10 VC investors by value of equity investment (2019-H1 2024)***

| | |
|---|---|
| Parkwalk Advisors | £1.35b |
| KKR | £792m |
| Octopus Group | £788m |
| Syncona Partners | £787m |
| BGF (formerly Business Growth Fund) | £747m |
| IQ Capital Partners | £720m |
| Amadeus Capital Partners | £693m |
| Molten Ventures | £656m |
| Phoenix Court Group | £593m |
| SV Health Investors | £547m |

* These figures represent a combination of the total funding round rather than individual VC contributions

## Deep tech companies securing follow-on round investment

The chart shows the proportion of equity deals by the number of rounds a company has raised at the point of investment. For example, a deal in the "3" category indicates that that deal is the third instance of a company raising equity investment.

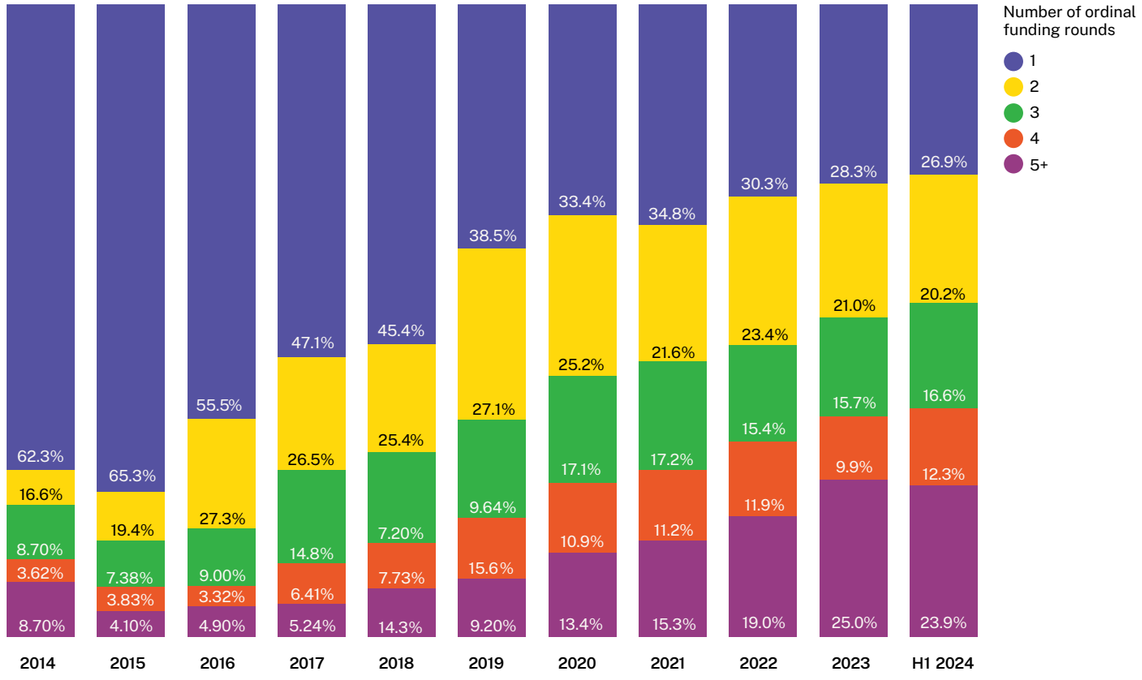
Over time, the proportion of deep tech companies raising additional funding (beyond their first round) is increasing. This suggests that deep tech companies are overcoming hurdles to raise funding in subsequent rounds—some of which will be follow-on investments from existing investors looking to further back their investments. This is a promising sign as it indicates a willingness of investors to follow their money as companies achieve milestones and commercialise effectively. Follow-on investments are important for investors who want to maintain the size of their equity stake as the business takes additional investment.

Over time, first-round deals have contributed a smaller proportion of the total number of deals, making up 62.3% of investments in 2014 but only 27.0% in H1 2024. Over the same period, deals that are a company's fifth or higher are making up an increasingly high proportion, increasing from 8.70% to 23.9%.

Several prolific investors in deep tech companies are also carrying out follow-on funding. Crowdfunding platform Crowdcube, as well as Scottish Enterprise and Mercia Ventures, are among the top funds following their money by investing in several different rounds in the same company.

Among the companies receiving multiple follow-on investments is London-based Quantum Motion, a spinout from University College London and Oxford University. The company develops and commercialises silicon-based quantum computers. Since its launch in 2017, Quantum Motion has raised £52.2m in equity funding via four funding rounds. The firm has attracted continued support from prominent investors such as IP Group, Parkwalk Advisors, and Oxford Science Enterprises, among others.

**Proportion of equity investment by number of rounds (2014 - H1 2024)**



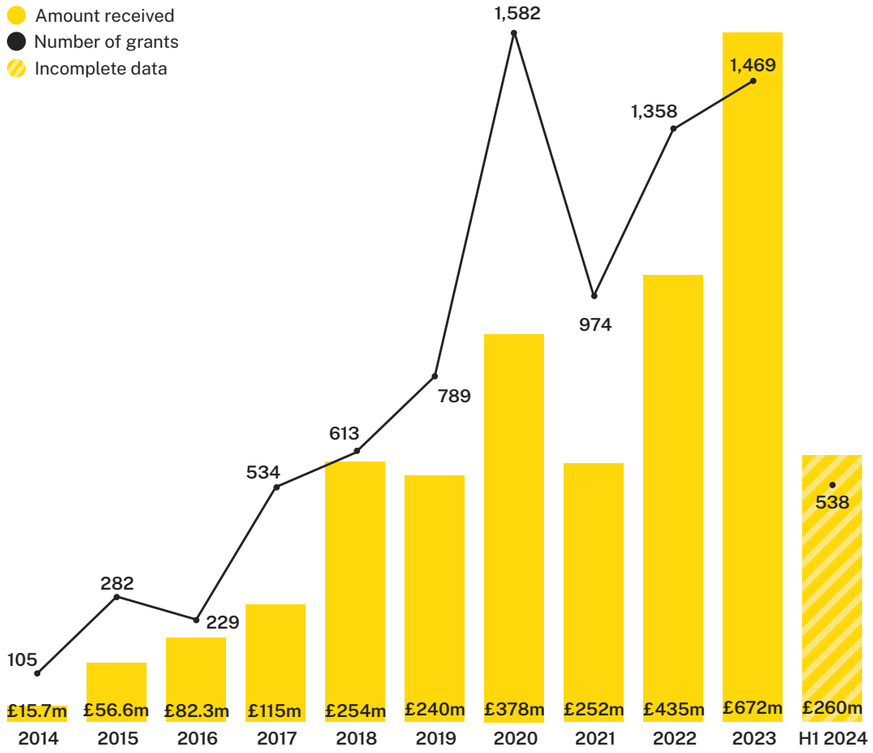
## Grant funding awarded to deep tech companies

The value of and number of grants awarded has followed an increasing trend since 2014. The highest value of grant funding awarded to deep tech companies was in 2023, with £672m distributed across 1,469 grants. A prominent recipient of this funding was the Medicines Discovery Catapult, a not-for-profit organisation dedicated to advancing medical innovation. Since its inception, the organisation has received £157m via 26 grants, with its most recent funding awarded in March 2024.

In 2021, there was a noticeable decline in grant activity. The £252m awarded across 974 grants is a 38.4% reduction from the number of grants awarded in 2020. This drop is attributed to the pandemic. Grant activity increased in 2020 as emergency funds were provided to startups and IP-rich companies to improve the chance of survival. Therefore, the 2021 drop is a return to normal levels, rather than an overall decline.

In the first half of 2024, more than £260m in funding was awarded via 538 grants. Both grant values and the number of awards are expected to increase as more data becomes available throughout the year and into next year. In any case, it is likely that 2024 figures will outpace those of 2021 and possibly 2022.

**Grant funding awarded to deep tech companies (2014 – H1 2024)**




## The future of deep tech in the UK

The future of the deep tech sector holds significant promise. Sub-sectors such as artificial intelligence and CleanTech play a crucial role in driving future economic growth and addressing global challenges like climate change. The sector's growth potential is considerable. Microsoft has estimated that the UK's GDP could be boosted by £550b by 2035 due to growth in the use of artificial intelligence and cloud technology. To unlock this potential, a robust ecosystem is essential to support and foster the sector's expansion.

The new Labour government is pivotal in unlocking this growth through its policies and regulatory framework. The Labour manifesto and Industrial Strategy emphasise that driving innovation is essential to the country's growth agenda. Their approach to drive innovation, in turn supporting the deep tech sector, is to reduce regulation within infrastructure planning, eradicate short-term R&D funding, and establish a new Regulatory Innovation Office.

In the past, planning regulations have impeded the development of new data centres, which are vital for artificial intelligence, blockchain, quantum computing, and other data-driven deep tech sub-sectors. Labour plans to relax these restrictions, ensuring the UK's digital infrastructure is equipped to handle the demands of increased data usage and technological innovation.

The new Regulatory Innovation Office is expected to accelerate the development of new technologies by speeding up regulatory updates and shortening approval timelines. In addition, short-term R&D funding cycles will be eliminated, with new funding periods extended to at least 10 years. This longer-term approach aims to foster deeper partnerships between government and industry, positioning the UK at the forefront of global innovation.

**Page 19** of this report cover the spinout companies in the deep tech sector. Spinouts drive innovation by commercialising cutting-edge academic research into viable products and services. The Labour manifesto commits to supporting startups and spinouts by improving access to finance. Current support includes the SEIS and EIS, tax incentive programmes designed to stimulate investment in early-stage businesses. As of April 2023, SEIS limits have increased to £250k, and eligibility criteria have expanded to include companies up to three years old with assets up to £350k. These changes benefit high-growth sectors like deep tech, which require substantial capital. The schemes offer tax relief and encourage long-term investment, which provides stability during crucial growth phases. This stability is especially important in the deep tech sector where there are extended timelines between market entry and growth.

These initiatives signal the new government's commitment to driving innovation. However, challenges remain that could limit the deep tech sector's growth. Labour has cut £1.30b in funding that was to be used to support the tech sector. This puts projects like the planned supercomputer at The University of Edinburgh at risk. Given the rates of Capital Gains Tax (CGT) have increased, this could hinder the growth of startups and spinouts. There is also a pressing need to expand the power grid sustainably, ensuring sufficient energy for new data centres while meeting net zero targets.

Intel Ignite recognises the critical importance of sustainability and efficiency in supporting the next era of AI growth. Intel Ignite's vision is to foster innovation that advances technological capabilities and promotes sustainable computing practices.

Intel Ignite believes that the UK, with its rich history of innovation and strong support for deep tech, is the ideal environment to drive those advancements.

In summary, while the UK's deep tech sector holds significant promise, realising its full potential will require addressing these challenges through supportive policies, sustainable infrastructure development, and strategic investments.

[3] Amy Dawson, "AI could boost UK GDP by £550 billion by 2035, research shows", Microsoft, 16 May 2024, accessed **from.**

[4] Labour Party, "Change: Labour Party Manifesto 2024", Labour Party, 13 June 2024, accessed **from.**

[5] Zoe Kleinman, "Government shelves £1.3bn UK tech and AI plans", BBC News, 2 August 2024, accessed **from.**

## Conclusion

Intel Ignite's global and London programmes have made a meaningful contribution to the growth and success of numerous startups within the deep tech sector. Key achievements, such as companies in the first cohort securing £21.8m after the 12-week programme, reflect its effectiveness in nurturing high-potential companies. Participants of the programme have stated that these programmes provide the support to move from innovation to commercialisation.

The analysis of the UK's deep tech sector reveals a vibrant and evolving ecosystem. Regional hubs continue to develop, with artificial intelligence dominating the sub-sectors. New and emerging technologies are gaining traction, pointing to exciting opportunities in areas such as robotics, quantum, and augmented reality. Private investment remains strong in the deep tech sector, with the value of investment secured in 2023 over double the value secured in 2019 (pre COVID-19). The record level of grant funding secured in 2023 is another promising sign that the sector has support from government bodies as well as private investors.

Looking ahead, the UK deep tech sector is poised for growth, provided it remains supported by investment and favourable conditions for startups and spinouts. The impact of the new government's policies on investment incentives and infrastructure development will shape the deep tech landscape in the near future. The success of Intel Ignite's programme shows that with the right mix of expert advice and strong networks, UK deep tech companies can influence transformative technological innovation, driving economic growth.

## Methodology

To identify deep tech companies for this report, sub-sectors of Beauhurst-defined industries and emerging technologies were used in combination with growth milestones.

The full list of sub-sectors is provided below. The growth milestones are Beauhurst-defined high-growth triggers, which represent a significant event or achievement that validates a company's growth, innovation, or strategic progress. For more information on these growth triggers, please see **Beauhurst's website.**

Using the industries and emerging technologies offers a more technology-specific approach to selection rather than using Standard Industrial Classification (SIC) codes. A small portion of companies are added using three specific SIC codes. The companies in these SIC codes are only included if they have received public investment. A 10-year company limit on company age is applied across both these factors. The age limit and the growth milestones work in combination to ensure this report provides a closer analysis of how starting and scaling deep tech companies are faring in the UK, minimising the inclusion of older companies that may have diversified beyond their initial deep tech focus.

List of sub-sectors (Beauhurst-defined industries and emerging technologies):

- 3D printing
- Artificial Intelligence
- Augmented reality
- Big data
- Biomass and biofuels
- Blockchain
- CleanTech
- Drones
- Energy management and reduction
- Energy storage
- Renewable energy
- Graphene
- Electronics hardware
- Mobile, internet, and wireless hardware
- Server hardware
- Materials technology
- Medical devices and instruments
- Metamaterials
- Mobile, internet, and wireless hardware
- Precision agriculture
- Precision medicine
- Quantum
- Regenerative medicine
- Retail biometrics
- Robotic surgery
- Robotics
- Virtual reality

SIC codes used in combination with public investment

- 71200 - Technical testing and analysis
- 72110 - Research and experimental development on biotechnology
- 72190 - Other research and experimental development on natural sciences and engineering



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Beauhurst is a searchable database of the UK's high-growth companies. Our platform is trusted by thousands of business professionals to help them find, research and monitor the most ambitious businesses in the UK.

We collect data on every company that meets our unique criteria of high-growth; from equity-backed startups to accelerator attendees, academic spinouts and fast-growing scaleups.

Our data is also used by journalists and researchers who seek to understand the high-growth economy and powering studies by major organisations — including the British Business Bank, HM Treasury, and Innovate UK — to help them develop effective policy.

For more information and a free demonstration, visit **beauhurst.com.**

intel ignite

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Intel Ignite is an award-winning startup accelerator programme, launched by Intel five years ago, focused on early-stage, deep tech startups. Through a competitive selection process, ten startups are chosen to participate in the 12-week programme, which is held twice a year in the United Kingdom, United States, Europe, and Israel.

Intel Ignite's mission is to fuel a global ecosystem of deep tech innovation by empowering a diverse network of founders, mentors, domain experts, and investors to co-create the future of the deep tech industry.

Over the past five years, Intel Ignite has had a profound impact on the startup ecosystem. More than 5,200 startups have been screened, and 216 deep tech startups have been accelerated, helping founders turn world-changing ideas into successful companies.

The Intel Ignite portfolio has raised more than $3.5b in funding and acquisitions.

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