



The  
Alan Turing  
Institute

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Rebalancing Innovation:  
Women, AI and Venture  
Capital in the UK



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# Introduction: AI venture capital through a gender lens

***Rebalancing Innovation: Women, AI and Venture Capital in the UK*** presents a unique picture of gender diversity in AI-focused venture capital (VC) investment over the last decade.

Venture financing is a vital source of entrepreneurial capital and spurs technological innovation. Yet despite the recent surge in the number of companies set up by women,<sup>1</sup> access to venture capital funding remains more difficult for female founders.<sup>2</sup>

The lack of gender diversity in the industry is arguably its most pressing challenge. To a large extent, this reflects the broader problem of the underrepresentation of women in AI fields.

The **Women in Data Science and AI** project at The Alan Turing Institute works alongside policy makers and industry stakeholders to increase the participation of women in the data science and AI

fields. Our policy paper *Where are the Women? Mapping the gender job gap in AI* notes that women make up approximately 20% of AI and data science professionals in the UK.<sup>3</sup>

This gender gap shapes scientific knowledge and technological innovation. Indeed we argue that it results in potentially harmful feedback loops of social biases being built into machine learning systems.

With the explosion of generative AI (such as ChatGPT), the need to ensure that women and marginalised groups have an equal place in the VC ecosystem and tech entrepreneurship more widely is urgent.

VC investors have a disproportionate impact on the culture, products and services of the companies in which they invest. At a time when AI development is exponential, this has never been more important.

Although twice as many female-founded companies were created in 2022 than in 2018, investment into startups with at least one female founder was 11% in 2022 - barely changing across the five previous years.<sup>4</sup> Indeed, we find that most VC investments in UK AI startups in 2022 (77%) were in companies without any women founders.

In the UK, women comprise 20% of investment roles in the VC labour force.<sup>5</sup> However, only 12% of senior investors are women.<sup>6</sup>

The UK is the largest venture market in Europe, and ranks third globally.<sup>7</sup> VC plays a crucial role in technological innovation. It determines who and what gets funded, and fundamentally shapes startups' business models and corporate growth trajectories. In the longer term, VC also influences the culture of the companies that may well become the mega corporations of the future.

Encouraging inclusion and equity will not only promote responsible AI design but will also enhance the performance of firms.<sup>8</sup> Moreover, this is becoming a standard part of implementing ESG (Environmental, Social, and Governance) factors into investment decision-making.

There are several exciting initiatives to promote equality and diversity in the UK, such as the Rose Review and Investing in Women Code (the women-led high-growth enterprise taskforce). As noted in the recent Treasury Committee report on *Venture Capital*, “diversity statistics in the venture capital market are unacceptable”.<sup>9</sup>

Building upon PitchBook’s extensive data,<sup>10</sup> we investigate how a lack of diversity in the VC and startup UK ecosystem shapes AI and machine learning technologies and the innovation landscape. While a focus on diversity in innovation is developing in the USA, work specifically on investments in AI is in its infancy in the UK.<sup>11</sup>

Our project aims to address this gap.

This introductory report examines both sides of the coin. We begin by analysing the gender (dis)parity in VC investments in UK headquartered startups, first across all sectors, and then honing in on AI. Then we turn the focus around to examine how the decision-makers (e.g. general partners) of UK headquartered VC firms are themselves characterised by a significant gender divide.

Our analysis shows positive progress in the UK over the last decade. For example, the share of VC deals secured by companies founded by women has increased from 4% to 6% - but there is still a huge gender disparity.

Addressing the finance gap between male and female entrepreneurs is an urgent issue in terms of equity. It is also essential for fostering a more innovative and agile economy.

The UK government’s ambition is to lead on science and technology within a thriving investment, startup and innovation ecosystem. Indeed, evidence confirms that diversity within investment firms results in better performance. Firms with female

investment partners are also more likely to invest in female founders.

As part of The Alan Turing Institute’s Public Policy Programme, we hope this report provides a solid foundation for recommendations to improve funding outcomes for women-led AI businesses across the UK.

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### Women in Data Science and AI team



**Professor Judy Wajcman**



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# Executive Summary

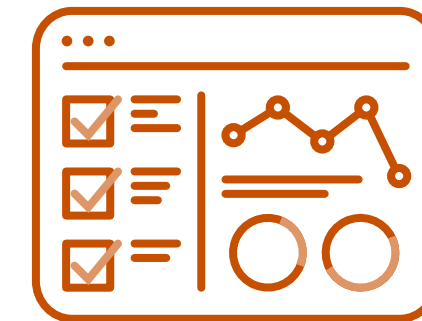
- 1** This report builds on PitchBook data to explore gender disparity in venture capital (VC) investments in UK headquartered startups and VC firms over the last decade (2012-2022). We first map the landscape of venture capital investments across all sectors, and then hone in specifically on Artificial Intelligence (AI).
- 2** Most venture capital investments across sectors are raised by all-male founding teams. Average capital raised per deal by a female-founded company (£2.5 million) is 4x lower than the average capital raised by an all-male founder team (£11 million).
- 3** Venture capital firms with majority male decision-makers invest almost all of the capital across all sectors. VCs with equal or majority representation of women at the decision-maker level make up less than four percent (4%) of all firms that participated in deals over the last decade, and account for an even smaller share in total capital invested (3%).
- 4** In AI, the venture capital funding problem for women is even more marked. Female-founded startups accounted for only 2.1% of VC deals involving AI startups. Moreover, average deal capital raised by a female-founded AI company (£1.3 million) is 6x lower than the average capital raised per deal by an all-male founder team in AI (£8.6 million). This is significantly lower than the equivalent proportion across all sectors.
- 5** Venture capital firms with majority male decision-makers invest almost all of the capital in AI deals. Firms with equal or majority representation of women at the decision-maker level make up less than five percent (4.5%) of all VC firms, and account for a tiny share in total capital invested in AI (3.4%).
- 6** Investment in AI software is booming globally, but all-female teams raised less than half a percent (0.4%). This accounted for £150 million out of £35 billion of capital in AI software over the last decade in the UK.
- 7** Although there has been an upward trajectory in the number of female-founded startups, the lack of gender diversity in the VC and startup ecosystem is still a pressing and urgent challenge. We thus outline a number of recommendations to tackle this.

# Recommendations



## Improve recruitment and promotion processes

The UK government and relevant industry bodies should collaborate to establish incentives and targets for recruiting, up-skilling, retaining and promoting women. VC firms need to take proactive steps to ensure the inclusion of women in decision-making practices.



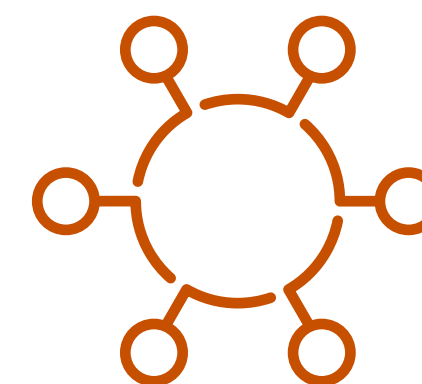
## Monitor investment practices

VC decision-makers must consider and report on the impact of their firm's investment decisions on equality outcomes. This includes the types of AI technologies being funded. In particular, VC firms must ensure assessment processes for potential founders mitigate gender bias as far as possible.



## Foster an inclusive culture

VC firms must lay foundations to create inclusive workplaces for employees and for portfolio companies, for example, through creating an internal EDI (Equality, Diversity and Inclusion) framework.



## Diversify the ecosystem

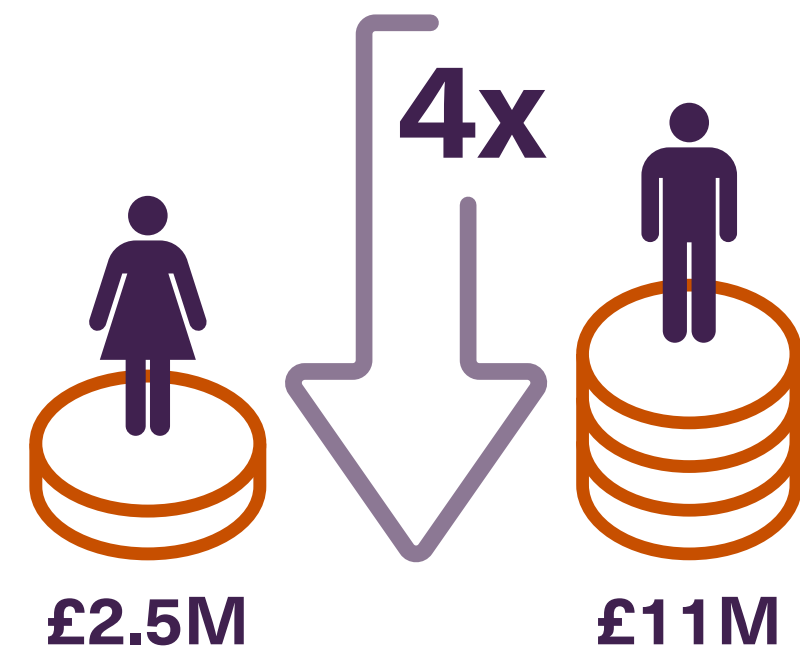
VC funds should build relationships with tech and entrepreneurial communities that can widen access to both investor and founder talent. This commitment to diversity should be showcased in external materials.

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# VC ecosystem in the UK (2012-2022)

# Most startup investments are still raised by all-male founding teams

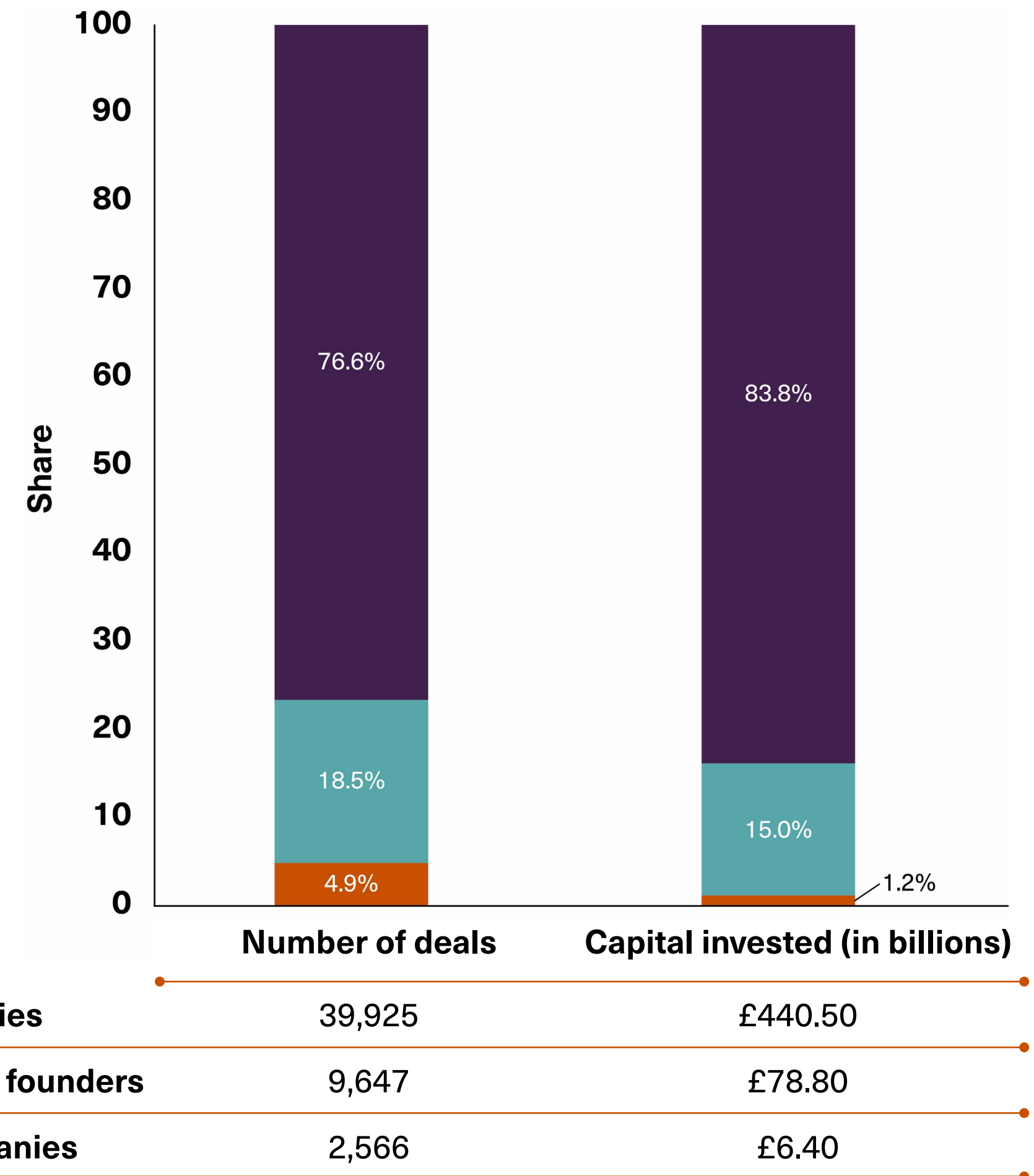
Average capital raised per deal by a female-founded company (£2.5 million) is **4x lower** than the average capital raised by an all-male founder team (£11 million).



Between 2012 and 2022, UK startups raised a total of £526 billion in 52,138 venture capital deals.

Companies founded exclusively by female entrepreneurs accounted for only 4.9% of all such startup deals and raised just 1.2% (£6.4 billion) of the total capital invested by VCs.

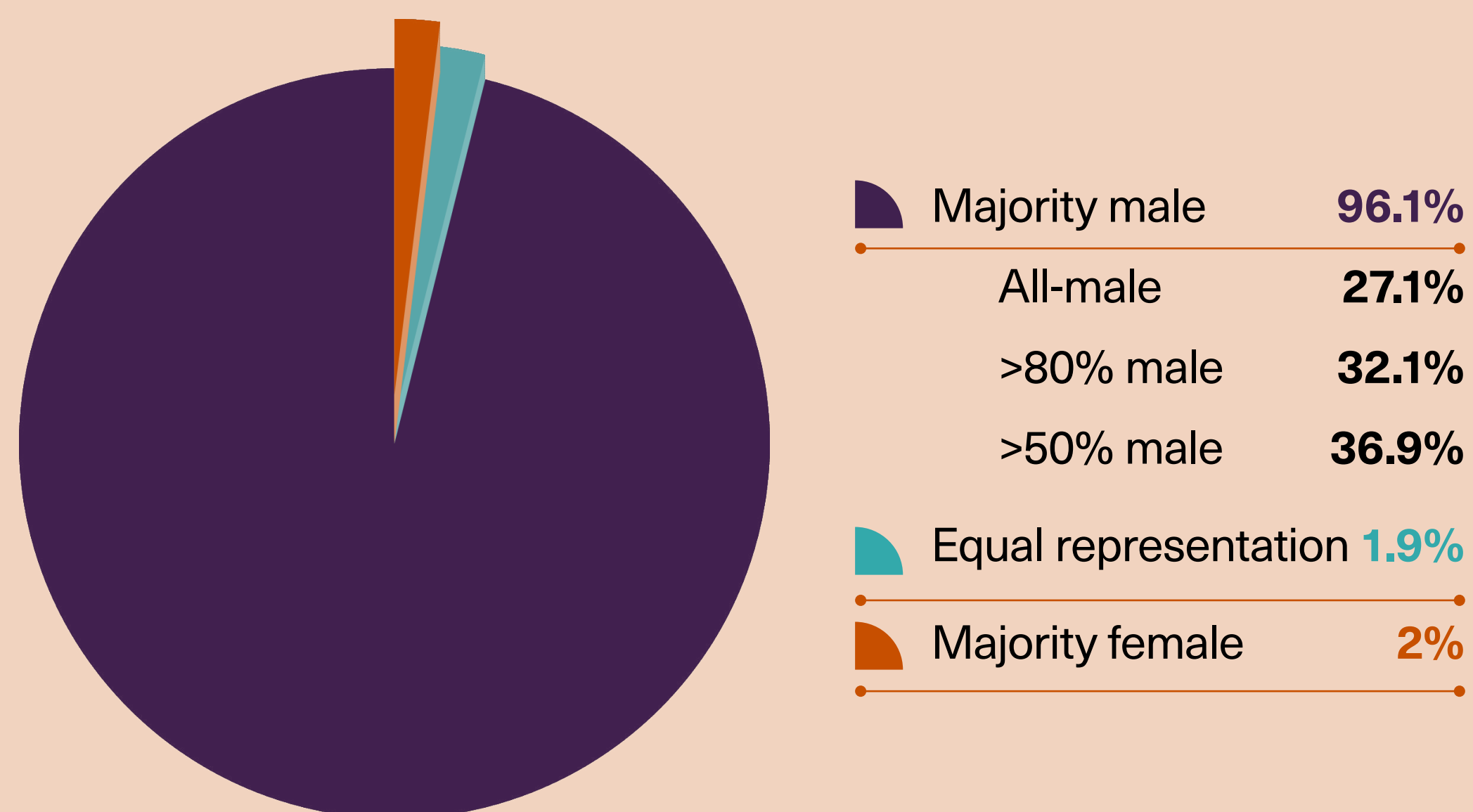
However, there was a promising increase in the share of VC deals secured by female-founded companies from 4% in 2012 to 6% in 2022.



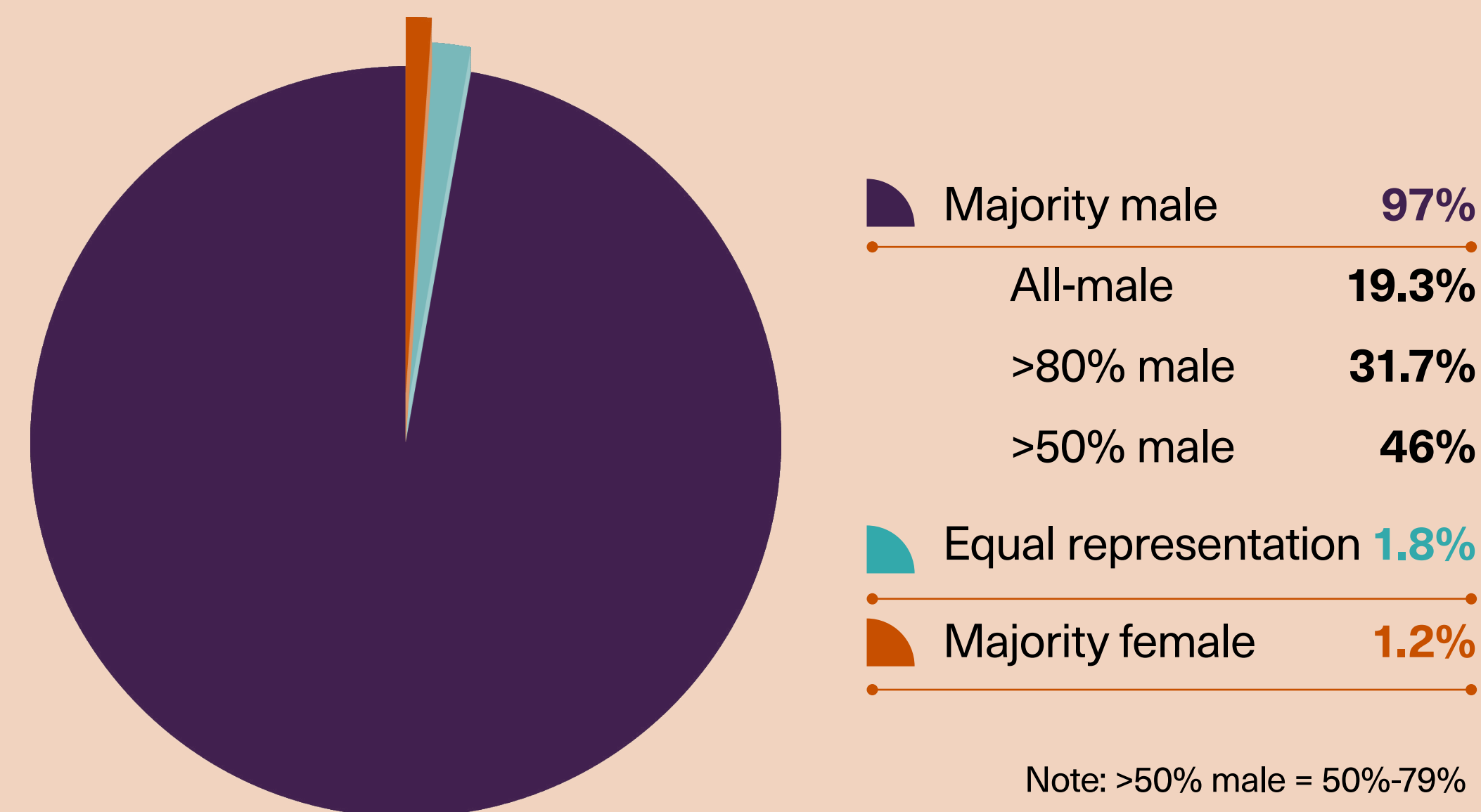


## VC firms with majority male decision-makers invest almost all of the capital

Gender representation of VC firm decision-makers



Capital invested, by gender



Out of all UK headquartered venture capital firms participating in funding deals between 2012 and 2022, 96.1% have majority male decision-makers – and they invested almost all of the capital (97%).

VCs with equal or majority representation of women at the decision-maker level make up only 3.9% of all firms, and account for an even smaller share in total capital invested (3%).



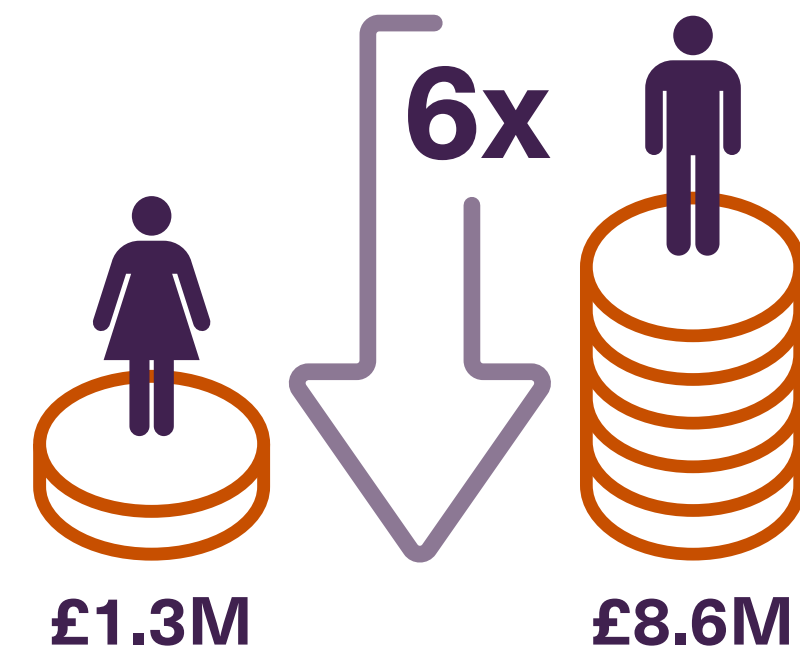
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# VC ecosystem *in AI* in the UK (2012-2022)



# In AI, the VC funding problem for women is even more marked

Average capital raised per deal by a female-founded AI company (£1.3 million) is **6x lower** than the average capital raised by an all-male founder team in AI (£8.6 million).



Most VC investments in AI are raised by all-male founding teams.

VC deals with AI companies founded solely by male entrepreneurs between 2012 and 2022 represent 79.6% of the total number of deals during that time. They raised 79.3% of total capital invested (£55.1 billion out of £69.5 billion).

In comparison, female-founded companies accounted for only 2.1% (173) of AI startup deals, and raised a mere 0.3% (£0.2 billion) in total VC investments in the space.





Average capital raised per deal  
by a female-founded company is

**4x lower**

than the average capital raised  
by an all-male founder team.



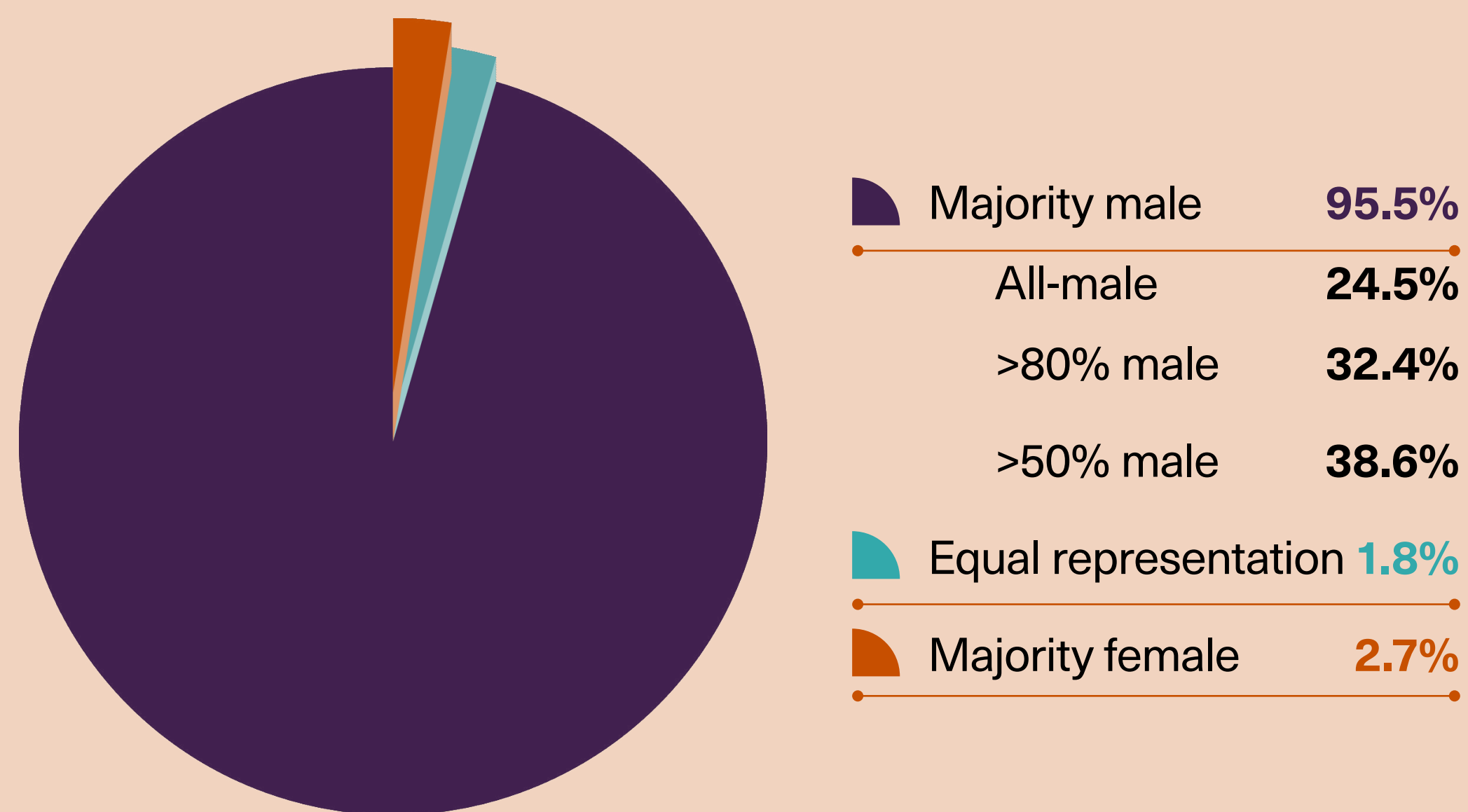
This drops to

**6x lower**

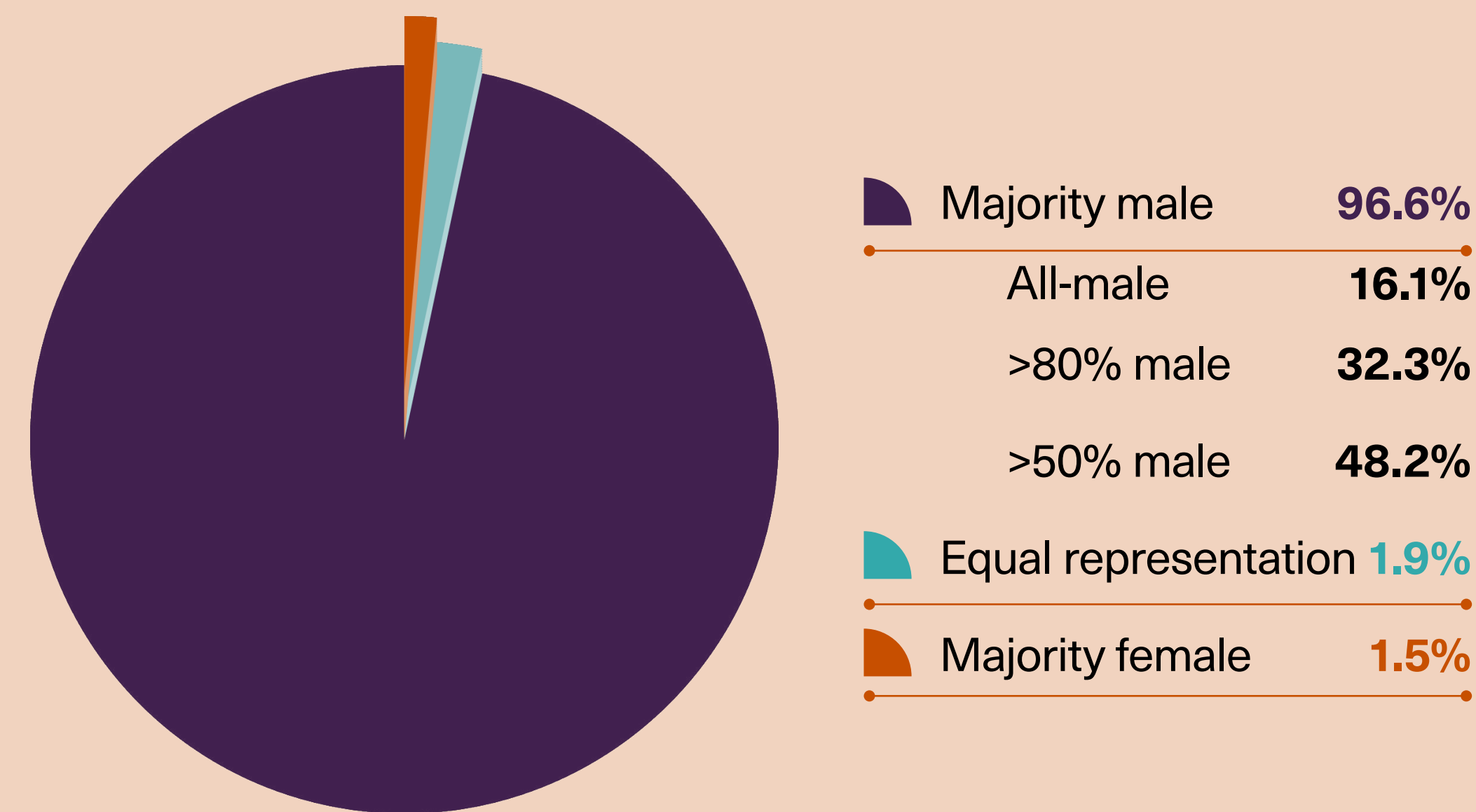
when looking  
specifically at AI.

# VC firms with majority male decision-makers invest almost all of the capital in AI

Gender representation of VC firm decision-makers investing in AI



Capital invested in AI, by gender



Between 2012 and 2022, UK-headquartered VC firms made £25.9 billion in investments into UK-based startup companies across a total of 4,355 deals focusing on AI and machine learning technologies.

VCs with majority male decision-making teams accounted for the vast majority of firms participating in such deals (95.5%) and invested almost all of the capital (~96.6%).

Firms with equal or majority representation of women at the decision-maker level make up only 4.5% of all VCs, and account for a tiny share in total capital invested in AI (3.4%).

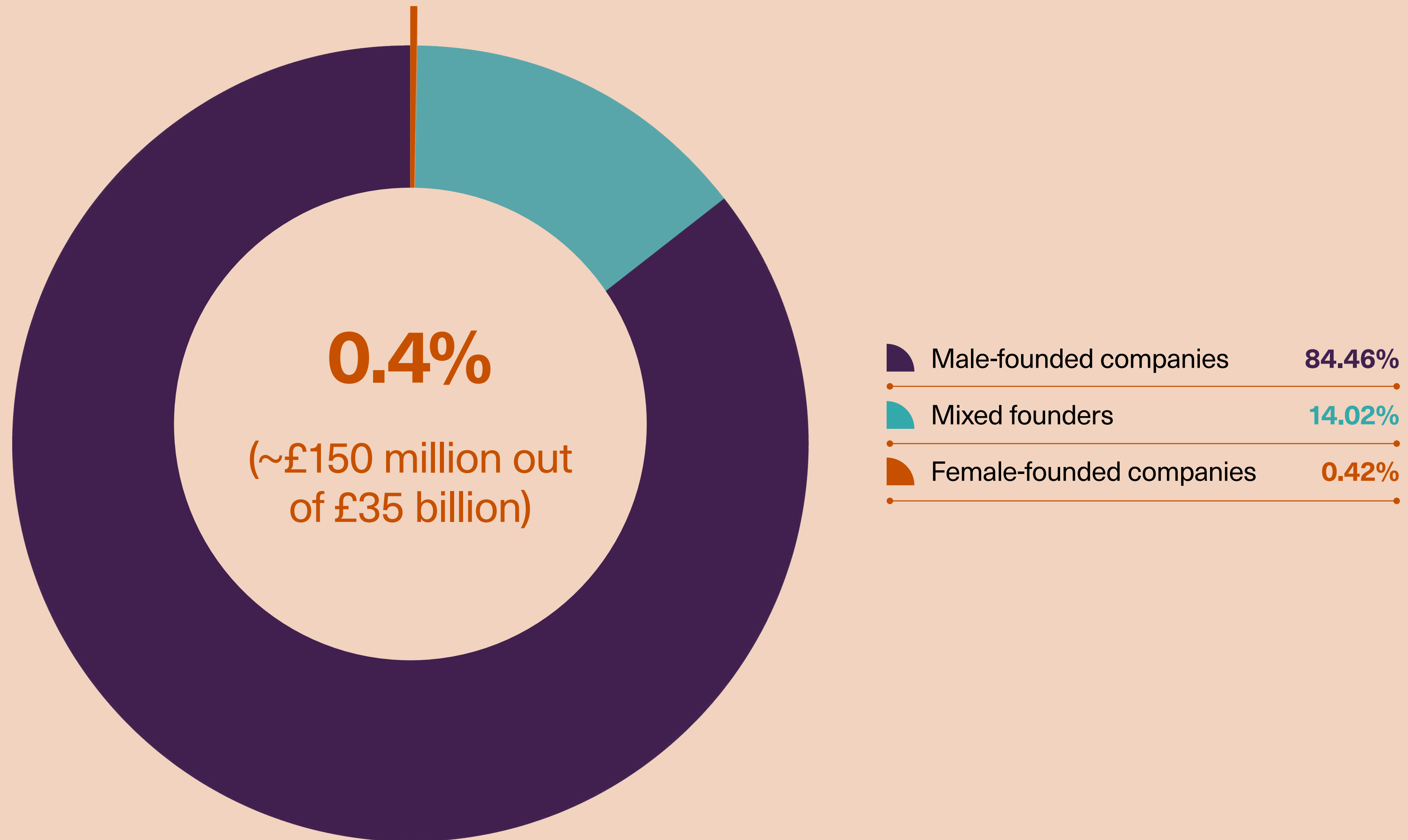


# Investment in AI software is booming...

## Top 10 startups by capital raised within AI Software globally

Company Name	Verticals	Primary Industry Code	HQ Location	HQ Country/ Territory	Total Capital Raised (\$B)	Last Known Valuation
OpenAI	AI & ML	Software Development Applications	San Francisco, CA	United States	11,310.12	28,000.00
Waymo	AI & ML	Automotive	Mountain View, CA	United States	5,500.00	30,750.00
Databricks	AI & ML	Database Software	San Francisco, CA	United States	3,497.36	38,000.00
Anduril	AI & ML	Aerospace and Defense	Costa Mesa, CA	United States	2,315.10	8,480.00
Figure	AI & ML	Financial Software	Reno, NV	United States	1,553.00	3,200.00
ContentSquare	AI & ML	Business/Productivity Software	Paris, France	France	1,412.57	5,686.40
Faire	AI & ML	Information Services (B2C)	San Francisco, CA	United States	1,255.31	12,590.00
Momenta	AI & ML	Business/Productivity Software	Beijing, China	China	1,251.00	1,000.00
Nanjing LingHang Technology	AI & ML	Automotive	Nanjing, China	China	1,196.27	-
Automation Anywhere	AI & ML	Business/Productivity Software	San Jose, CA	United States	1,172.97	7,290.00

## ...but all-female teams raised less than half a percent of capital in AI software over the last decade in the UK





# Recommendations

- 1. Improve recruitment and promotion processes:** The UK government and relevant industry bodies [e.g., the British Private Equity & Venture Capital Association (BVCA) and the British Business Bank (BBB)] should collaborate to improve recruitment and promotion processes by establishing incentives and targets for recruiting, up-skilling, retaining and promoting women. VC firms need to take proactive steps to ensure the inclusion of women in decision-making practices, such as increasing transparency in hiring criteria and ensuring that networking events are inclusive. Making the success of diversity initiatives a key performance indicator (KPI) is crucial.
- 2. Foster an inclusive culture:** Cultural change needs to be driven from the top. VC firms must lay foundations to create inclusive workplaces for employees and for portfolio companies through creating an internal EDI (Equality, Diversity and Inclusion) framework. Supporting flexible working and parental leave, for example, is important for challenging the long hours culture which is still the norm in the industry.
- 3. Monitor investment practices:** VC decision-makers must consider and report on the impact of their firm's policy decisions on equality outcomes. In particular, VC firms should ensure assessment processes for potential founders mitigate gender bias as far as possible. This includes the types of AI technologies being funded. Initiatives such as Gender Lens Investing may point the way.
- 4. Diversify the ecosystem:** VC funds should build relationships with tech and entrepreneurial communities that can widen access to both investor and founder talent. This commitment to diversity should be showcased in external materials. By paying particular attention to team composition, investors can instigate a wider conversation around proactively engaging more diverse groups.

## Next steps

Our focus in this report has been on gender disparities. In the future, we will be widening our lens to take account of other forms of marginalisation. Given the limitations of available data, this will entail both focus groups and individual interviews to capture the complex intersectional relationships at play. We will also examine the stages and dynamics of funding rounds, as well as domains within AI, to develop a better understanding of the gender gap in VC funding in AI.

# Appendix

## 1 Data and methods

The methodology for this research report used descriptive statistics to analyse data sourced from Pitchbook for the time period 2012 to 2022, broken down by gender. The aggregated numbers were obtained by calculating the average values for each variable of interest, such as capital invested or gender representation, using the data collected over the entire decade. The resulting average values were then used to present the findings in their respective sections.

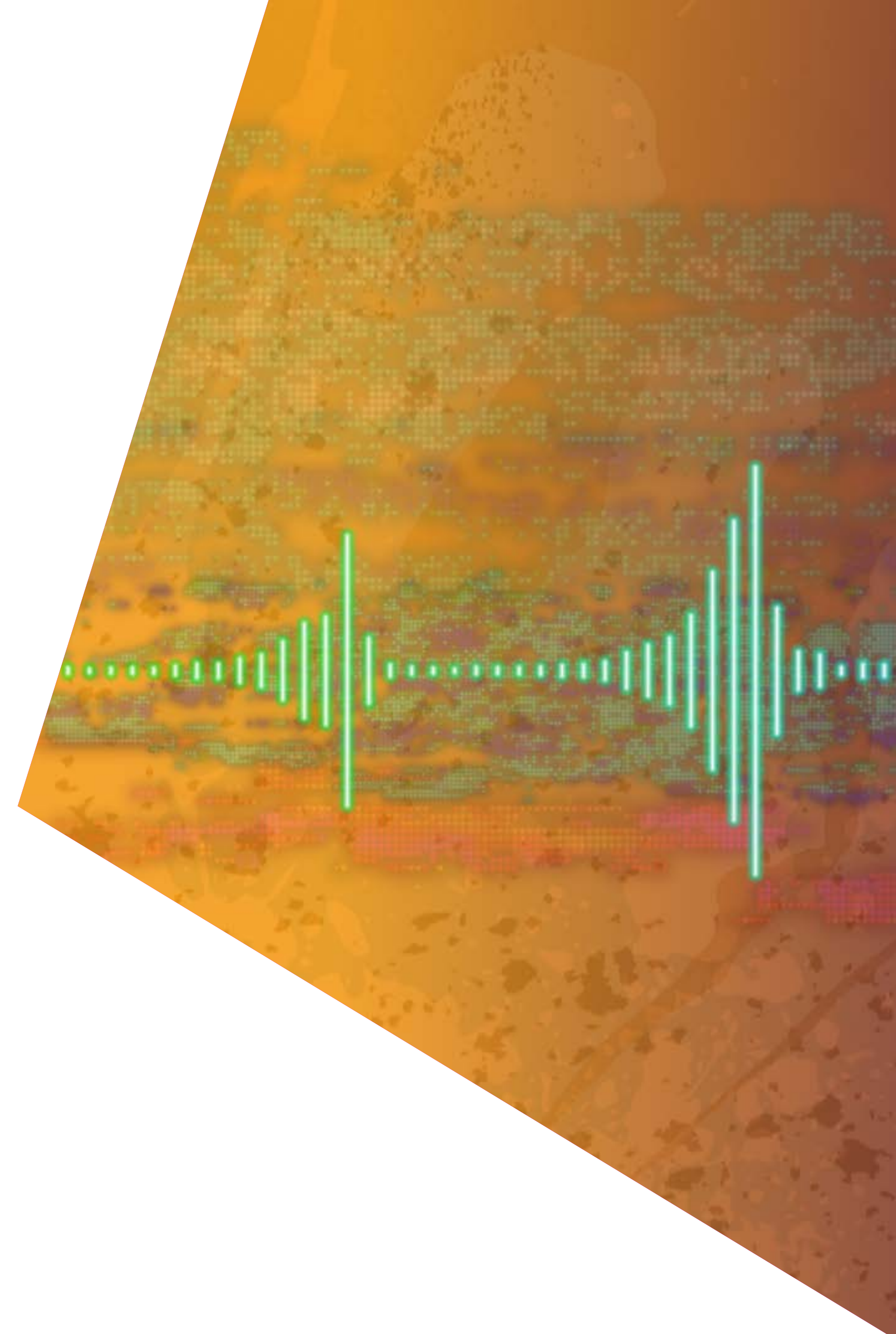
## 2 Definitions

### Venture Capital

Venture Capital (VC) is a form of financing in which firms provide capital to high-risk, early-stage companies that have significant potential for growth. In return for injecting capital, venture capital firms receive an ownership stake (equity) in the companies in which they invest.<sup>12</sup>

### Gender Lens Investing

Gender Lens Investing (GLI) is a form of socially responsible investing, or impact investing, that uses gender as a category of analysis in investment decision-making. It is still broadly defined, and crucially includes advancing products and services that improve the lives of women.<sup>13</sup>





# Appendix

## Definitions from PitchBook:

### Artificial Intelligence

Artificial intelligence (AI) focuses on creating intelligent computers that can perceive their environment and make decisions to maximize the chances of reaching their goals. Machine learning (ML) is a subfield of AI that gives computers the ability to learn iteratively, improve predictive models and find insights from data without being explicitly programmed to do so. AI/ML applications include speech recognition, computer vision, robotic control and accelerating processes in the empirical sciences.

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### Deals

We include equity investments into startup companies from an outside source. Investment does not necessarily have to be taken from an institutional investor. This can include investment from individual angel investors, angel groups, seed funds, VC firms, CVC firms, corporate investors, and institutions, among others. Investments received as part of an accelerator program are not included; however, if the accelerator continues to invest in follow-on rounds, those further financings are included. All financings are of companies headquartered in the US, with any reference to “ecosystem” defined as the combined statistical area (CSA). We include deals that involve partial debt and equity.

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### Decision-makers

Includes the job titles ‘general partner, managing director, managing general partner, managing partner, partner, senior managing director, senior partner, senior principal, venture partner’ [taken from Pitchbook custom project feedback].

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### Software

Companies that design and develop software for both business and consumers.

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### Male-founded companies

Startups (co-)founded exclusively by male entrepreneurs.

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### Female-founded companies

Startups (co-)founded exclusively by female entrepreneurs.

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### Companies with mixed founders

Startups (co-)founded by male and female entrepreneurs.

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## Acknowledgments

We wish to thank PitchBook for making their data available to us and providing guidance with the analysis.

We would also like to thank Dr David Kampmann for his work on the data analysis and visualisations.



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# Women in Data Science and AI project

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