



Whitepaper

# The making of Silicon Gorge

**How Bristol's tech sector hit the big time, and where it's heading now**



# Introduction

We started working on this piece at the beginning of the year, when the world and the economic landscape was very different to what it is today. The last few weeks have been unprecedented and we are clearly approaching difficult times. But there are still a lot of good things to celebrate, in particular about the amazing city of Bristol where I'm proud to lead a business.

My husband and I moved to Bristol in 2012. We wanted to start a bespoke software house in a vibrant city, with good business and recruitment opportunities, not too far from family and friends back in London. Since then we have seen Bristol firmly cement itself on the UK tech scene. With a huge range of businesses operating out of Bristol and a great community of tech enthusiasts, it's been exciting to network in the city and to be part of the growth story. But when operating in a bubble it's sometimes hard to see what's going on in the wider sphere. We started wondering, is Bristol really as special as we think, and if so, why? That's where this piece of research and reflection was born and I think it makes a compelling read.

We haven't once regretted our decision to start Ghyston in this great city and we're so proud of the way the whole community is pulling together in these times of crisis. Whilst the future is currently uncertain, we feel confident that the people and businesses of Bristol will find a way through.

**Emily Hill - CEO of Ghyston**



# Bristol: a bright star on the tech scene

A few years ago, if you had to pick a city synonymous with the tech industry, it would have been San Francisco, home of Silicon Valley. But today there's a new player on the scene: Bristol, home of Silicon Gorge.

Last year the city's tech companies raised over \$305 million from investors, representing more than 60% of the £500 million of VC funding raised by the city in total.

These impressive stats put Bristol's tech sector in third place in terms of investment secured in 2019, just behind London and Manchester.



The Tech Nation 2018 report went one step further, naming Bristol the country's "most productive and competitive technology cluster in the country."

And the city's success goes beyond the UK too. According to analysis by investment company CBRE, Bristol is one of the top 10 tech cities in the EMEA (Europe, the Middle East and Africa) region, ranking sixth to beat the likes of Cambridge and Vienna and achieve "super cluster" status.

There are currently over 10,000 technology companies in the city turning over a combined £7.9 billion across 2019. These businesses include the city's very own native tech unicorn, Graphcore, which just recently completed a funding round that brings its total investment to \$450 million and its valuation to \$1.95 billion.

One thing that has played a part in supporting these businesses is the number of tech hubs in the city. For example, Engine Shed is a collaborative events venue, office and co-working space which houses a number of tech organisations including TechSpark, which brands itself as the "information hub for all things tech in Bristol, Bath and the West of England Region"

Another Engine Shed resident is SETsquared, the world's leading university incubator supporting tech start-ups, run jointly by the universities of Bristol, Bath, Exeter, Southampton and Surrey. SETsquared has helped accelerate businesses such as Ultra Leap, Xmos and Zeetta Networks into the world.

Bristol Robotics Lab is another tech collaboration, between the University of Bristol and UWE, and currently hosts 369 members, 17 research groups and 25 incubator companies including Altered Carbon and Open Bionics, makers of superhero themed robotic arms for children.

## Bristol's tech unicorns

### GRAPHCORE

Founded: 2016

Founder: Nigel Toon, Simon Knowles

Investment to date: \$450 million

Valuation: £1.95 billion



Founded: 2009

Founder: Stephen Fitzpatrick

Investment to date: £231 million

Valuation: £1 billion

*"There has been a huge period of growth in the last five years," says Marty Reid, former Centre Director at science and tech workspace Future Space and now Head of the Engine Shed. "It feels like the tech sector has gone to a new stage of maturity."*

*"There's a much broader range of startups, support programmes and regional superstars who have done the bigger raises. It just feels like there's a vibrancy."*

*"And the investment data backs that up. Five years ago we were averaging \$40 million a year into Bristol startups, the last two years it's been around \$300 million."*

Capital isn't the only thing being attracted by Bristol's growing reputation as a tech hub. Businesses representing a vast range of diverse industries, nationally and internationally, are turning their attention to the city as a location for regional hubs that can take advantage of the skills and infrastructure on offer.

Just recently, multinational e-commerce fashion brand Matches announced they have chosen Bristol as the site of their new tech hub, while Secret Escapes, the members-only British travel company, are planning to grow their Bristol-based tech team this year.

*"The industry is maturing and it's accelerating," says Nic Hemley, co-founder of Bristech, the meetup and conference organisers. "There are a lot of new entrants being attracted."*



**Bristol's tech businesses  
attracted \$305 million in  
funding during 2019.**



**Bristol's tech sector  
employs a workforce of  
almost 25,000 people.**



**Bristol's tech businesses  
turned over a combined  
£7.9 billion in 2019.**

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*There has been a huge period of growth in the last five years. It feels like the tech sector has gone to a new stage of maturity. There's a much broader range of startups, support programmes and regional superstars who have done the bigger raises. It just feels like there's a vibrancy.*

Marty Reid, Head of the Engine Shed

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# What gives Bristol its competitive advantage?



## Top talent

Cost of living is less than London but salaries are higher than the national average which helps attract and retain top talent to the area.



## The happiest city

Bristol is a great city to live and work, regularly reaching tops spots in surveys about the country's happiest and best cities.



## Legacy

With a legacy of aerospace engineering, Bristol has had strong foundations to build upon.



## Location

Bristol's proximity to the Capital is a huge positive, especially since the launch of the super-fast train service in 2019 which connects the two in just 68 minutes.



## Hero companies

With hero companies like Graphcore proving it can be done, others have been spurred on, creating an upwards success spiral.



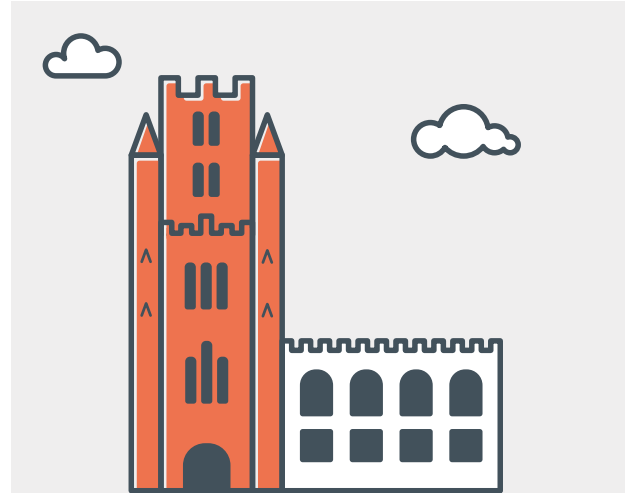
## Collaboration

At the heart of Bristol's success seems to be an underlying culture of collaboration that gives the tech sector an edge.

# An ecosystem of practical learning and innovation

One of Bristol's real strengths lies in an ecosystem that includes two leading universities, a vibrant business community and a number of incubators and other tech and startup hubs. These organisations are all well connected and actively engaging with each other, creating a positive feedback loop for practical learning and innovation.

Dr Seth Bullock took up his position as Toshiba Chair in Data Science and Simulation at Bristol University because he saw an opportunity to not only conduct academic research but to do so in a setting supported by the right infrastructure and application domains.



*"Bristol is one of the few universities in the country embedded in this very rich ecosystem of tech companies and tech innovation" he says.*

*"It has strong links with the city, it's doing interesting projects with local organisations, which means the data science activity isn't dry and academic, it's more connected to real world problems."*

There are numerous examples, from students prototyping analysis tools for the Environment Agency to people working with the BBC to help them understand how their IT infrastructure can be reconfigured to improve its carbon footprint.

These aren't tech businesses, yet they are embracing technology enthusiastically in a way that supports the city's leadership in the sector.

*"What is a tech company?" asks Professor Bullock. "We're doing a collaboration with LV, the insurance firm. You wouldn't necessarily think of them as a tech firm but the decision-making they do is done by analysis, and analysis augmented by tech is where they're going to get their advantage."*

*"Bristol is lucky that we have these really interesting companies on the doorstep."*

And then there are the digital, creative businesses adding their knowledge and expertise to the sector. Businesses like Aardman and IMDb, as well as a raft of creative agencies helping the innovators get their message out to the world.

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*Bristol is one of the few universities in the country embedded in this very rich ecosystem of tech companies and tech innovation.*

Professor Seth Bullock, University of Bristol

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# Beyond connection to collaboration

The interconnected nature of Bristol's educational and business worlds seems to reflect a deeper culture of collaboration that exists across the city.

*"We take it for granted how much collaboration happens here, much more than other areas," says Marty Reid. "Companies and sectors that are competitors will work together on projects for the greater good. We're walking the walk of collaboration rather than just talking about it."*

There are countless examples of this collaborative spirit being played out across the city's tech space.



Bristol Robotics Lab is a prime example, headed up by UWE and Bristol University - establishments one would be forgiven for calling academic rivals.

In the incubator space, there's further evidence of collaboration in the Bristol and Bath Network. This group of representatives from the region's incubators and co-working spaces meets monthly to share ideas on how best to support local start ups.

*"At a high level, co-working spaces are competing with each other to get the best companies," says Marty Reid. "And we do compete. But when it's about the bigger picture, about helping everyone grow, we work together."*

Even investment networks, traditionally closely guarded, are being opened up by the Investment Activator Programme (IAP). Launched in January 2020 to boost investment into the region, this pioneering collaborative programme is being delivered by TechSpark alongside partners including the Engine Shed, TLT and UWE.

Together they hold events such as investment briefings and pitching competitions, create educational content, share data about investment options and opportunities, and give startups and scale ups the chance to pitch directly to investors.

This sort of knowledge sharing can be seen across the industry, with tech meetups growing in number and popularity in recent years.

*"I genuinely think that people want to give back," says Nic Hemley. "They may have specialist knowledge in particular areas and they're not afraid to share what they know."*

*"That personal witness is really strong: these are the challenges I faced, this is the honest reality, and here's where I ended up. So there's a willingness to give back - or more than that, a genuine active desire to give back - and there's the openness."*

When Nic Hemley first started holding Bristech meetups, the group consisted of just over a dozen people. Today there are more than 2,700 professionals in the network, and tickets to the annual BrisTech conference sell out well in advance.

*“It’s exploded,” says Nic. “I feel I’m pushing an open door in terms of people wanting to share knowledge. It’s something Bristol does very well. I’d say it’s one of the unique things about the cluster, that the knowledge sharing is so strong.”*

This desire to share knowledge is evident at an individual and a business level, with a number of open source projects such as Open Bionics and the Bristol Pound app demonstrating the desire of the city’s tech industry to work together towards a common goal.

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Marty Reid, Head of the Engine Shed

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# Opportunities and challenges

For all the success Bristol can be proud of, this is not the time for the sector to be resting on its laurels. Not only is the industry changing and developing rapidly, there are wider threats and opportunities that must be faced now and in the future.

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## Access to talent

The talent shortage in the tech sector has been a subject of much debate in recent years. A 2018 report from The Edge Foundation suggested that there were 600,000 tech job vacancies in the UK, costing the country £63 billion a year.

Despite Bristol's excellent universities, thriving startup culture and strength in attracting big brands to the region, accessing talent was still listed as the second biggest challenge for tech businesses in a Tech Nation report, coming just behind attracting funding.

The cluster has been active in tackling this challenge, with initiatives such as the Bristol Calling campaign, which encourages those outside the region to come and "make the South West's success story yours". In addition, the Tech Talent Academy, Women's Tech Jobs, DevelopMe and the Mayden Academy aim to skill up those interested in a tech career.

But there are wider issues around political and economic uncertainty that will impact Bristol's tech talent pool. Despite being a city that voted roughly 2:1 to stay within the EU, it is likely that Brexit will have a marked impact.

*"Brexit is a massive challenge for us at the university," says Professor Bullock. "We're already losing people in not insignificant numbers."*

*"Bristol has done amazingly well to maintain its character of being a friendly, warm, risk-taking, progressive city during a period of prolonged austerity. If there is a prolonged downturn the situation isn't going to get easier for some of the grass-roots, risk-taking startup companies."*

*"The computer science graduates will always be able to find jobs, but the startup culture that Bristol has done really well to foster will need even more support in the next couple of years."*

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### Diversity and inclusion

The tech sector as a whole has a poor record when it comes to diversity and inclusion. Women account for just 16.8% of the tech workforce in the UK, for example, and only 15% come from black, Asian or other minority ethnic groups.

In Bristol some steps have been taken towards tackling this issue. For example, the Women's Tech Hub organises conferences, networking, workshops and training to *"support the development of a tech industry that is inclusive of all."*

At SETSquared, who have partnered with Natwest's Back Her Business initiative, the number of female founders increased from 4 to 14 following the publication of an internal briefing paper on gender diversity.

And they partnered with Ashley Community Housing and Up Our Street to conduct research into the barriers for people from BAME backgrounds accessing business incubation in the city, setting up a Breakthrough Bursary to cover 75% of residential startup membership fees for qualifying BAME founders.

But there is still a lot to be done. *"Our biggest challenge is a poor record in diversity and inclusion,"* says Marty Reid. *"Bristol's tech cluster feels very collaborative and engaging but data on BAME and female representation in senior leadership or just in the industry generally is still fairly poor."*

*"And also people we might label as disadvantaged, people in poorer areas of the city. As much as there's been all this growth and jobs created, it's not been shared across the city. That's something leaders of the industry need to tackle now, while we're in the growth phase."*

*"With any technology we have a real societal challenge around the ethics involved. I'm not someone who worries about the internet of things taking everyone's job - the job market evolves - but we need to make sure that increasing success in tech doesn't harm diversity and shared equality in society."*

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### Sustainability and the environment

And of course there is the climate crisis, which is the backdrop for every industry, including tech. While technology has the potential to contribute positively to tackling many environmental challenges, it is also a huge consumer of resources and energy.

With consumers becoming increasingly demanding when it comes to the ethics and values of the businesses they spend their money with, even the most established brands are paying serious attention to their green credentials.

Just look at Microsoft's promise to be carbon neutral by 2030 and to offset historical emissions by 2050. And closer to home, OVO Energy has made a commitment to cut their customers' carbon footprint in half by 2030.

The green agenda is likely to stand Bristol's tech sector in good stead as sustainability becomes an increasingly important part of every business conversation.

Bristol's record is good when it comes to sustainability. It was named European Green Capital in 2015, maintains its status as a Fair Trade city, and is home to the Soil Association, Sustrans and the Future Economy Network, among many other organisations.

At Bristol University, one research project is looking at creating a system that will make technology more energy efficient at the coding level. And in February this year, ADLIB and The Future Economy Network launched GreenTech South West, a community dedicated to making the South West greener through education and discussion around green technologies.

*"The green agenda is going to become increasingly important and it's up to places like Bristol to take up the lead and find ways to spread that out,"* says Professor Bullock.

*"Bristol is not as restrained by being very large or by the infrastructure we rely on. The narrative that the city has told itself is consistent with the changes - we can build on that more easily than if we were doing it from scratch."*

The green movement is part of a wider conversation around values, which are increasingly driving consumer behaviour, not to mention talent acquisition. It's something businesses have increasingly been taking on board and looks set to be an increasing trend for the future.

*"I have seen - whether from big corporates or startups and scale ups - that there's an increasing amount of value driven work,"* says Nic Hemley. *"Whether it's startups that are working in medtech because they want to cure illness or more companies becoming B Corps."*

*"I'm hoping it's a generational trend but also people are realising that there's a business value in that. So I'm optimistic about the direction of travel."*

# Bristol's tech future

The future is virtually impossible to predict and all any business can do is keep an eye on the horizon and stay flexible and open to adapting as new challenges and opportunities arise.

It may still take time to fully appreciate whether the investment attracted by the region's tech superstars has filtered down to the medium sized businesses or whether the data has been slightly skewed by the big players.

But the Bristol tech sector's growth trajectory shows no signs of slowing down any time soon.



From Zeetta Networks leading the government's £9m project to test 5G in manufacturing, to the Quantum Technologies Innovation Centre that is due to be built as part of the University of Bristol's new Temple Meads campus, the city has its fingers in many high tech pies.

Whatever the future of the tech sector holds, it seems certain that Bristol will be a key player.

## Final thoughts on the future of Bristol's tech scene

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*It's clear that computing technology is going to be increasingly pervasive, it's going to touch more and more aspects of our lives. There are some challenges there about the resources it consumes, challenges around the pathologies that come with being interconnected all the time. The genie can't be put back in the bottle, we're going to be more and more serviced by computational stuff. How that is manifested I think will be a continuous series of surprises.*

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**Professor Bullock**

Toshiba Chair in Data Science and Simulation at University of Bristol

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*Bristol's tech industry is diversifying hugely, and it's going to get deeper and more diverse. I think we can expect to see subclusters around emerging fields like machine learning and machine learning ops. But also growth in web developers, agencies, services companies and so on, as well as the pure tech businesses who they're servicing.*

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**Nic Hemley**  
Founder of BrisTech

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*I think in a few years time the tech sector will be a meaningless definition. The application of technology will be through all business. An insurance company or finance company needs technology just as much as a software business. Large corporations are investing hugely in digital engineering. The tech cluster as it is will just filter into all industries.*

Marty Reid, head of the Engine Shed

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**Marty Reid**  
Head of the Engine Shed

# About Ghyston

We are a team of software experts based in Bristol with diverse experience in developing highly functional websites, mobile apps, and complex businessware.

Using an agile approach, we work closely with clients to understand their needs, ensuring the developed solution is exactly what they need to realise their business ambition.

With rapid growth in new technologies our clients benefit from our in-depth knowledge combined with our ability to talk tech in plain English. We recruit the best in the industry and strive to provide value through quality - we believe this is why our clients choose to work with us time and time again.

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