British Private Equity & Venture Capital Association

VC EVOLVED

How VC has adapted in the 15 tumultuous years since the Dotcom Boom

James Clark
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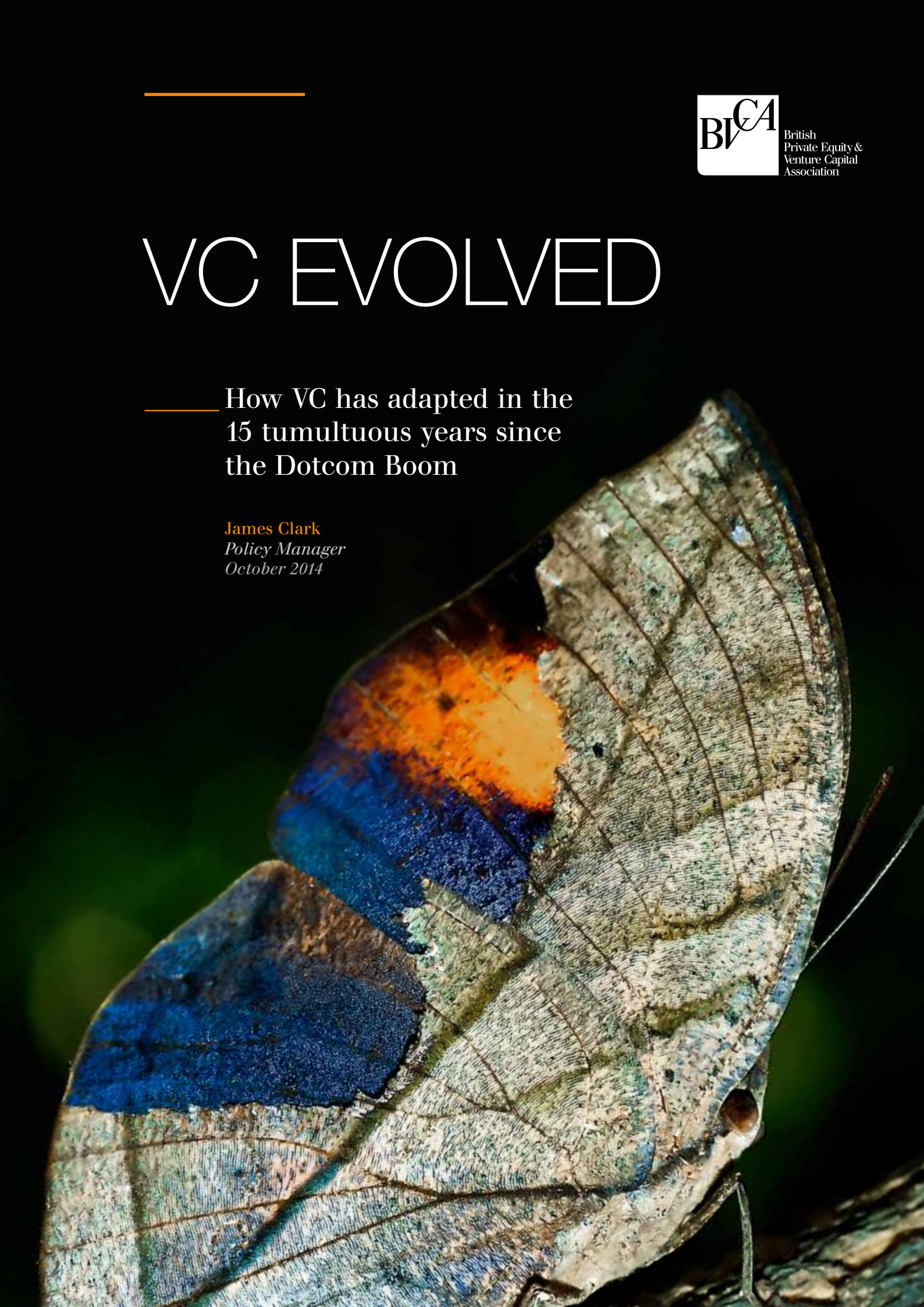
October 2014



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Some contributors provided context for the wider industry, some shared their personal experiences of the last 15 tumultuous years, some are measuring the changes to the industry as they are happening, and some are pushing the boundaries of venture every single day. To those who have shared their knowledge, the BVCA thanks you.

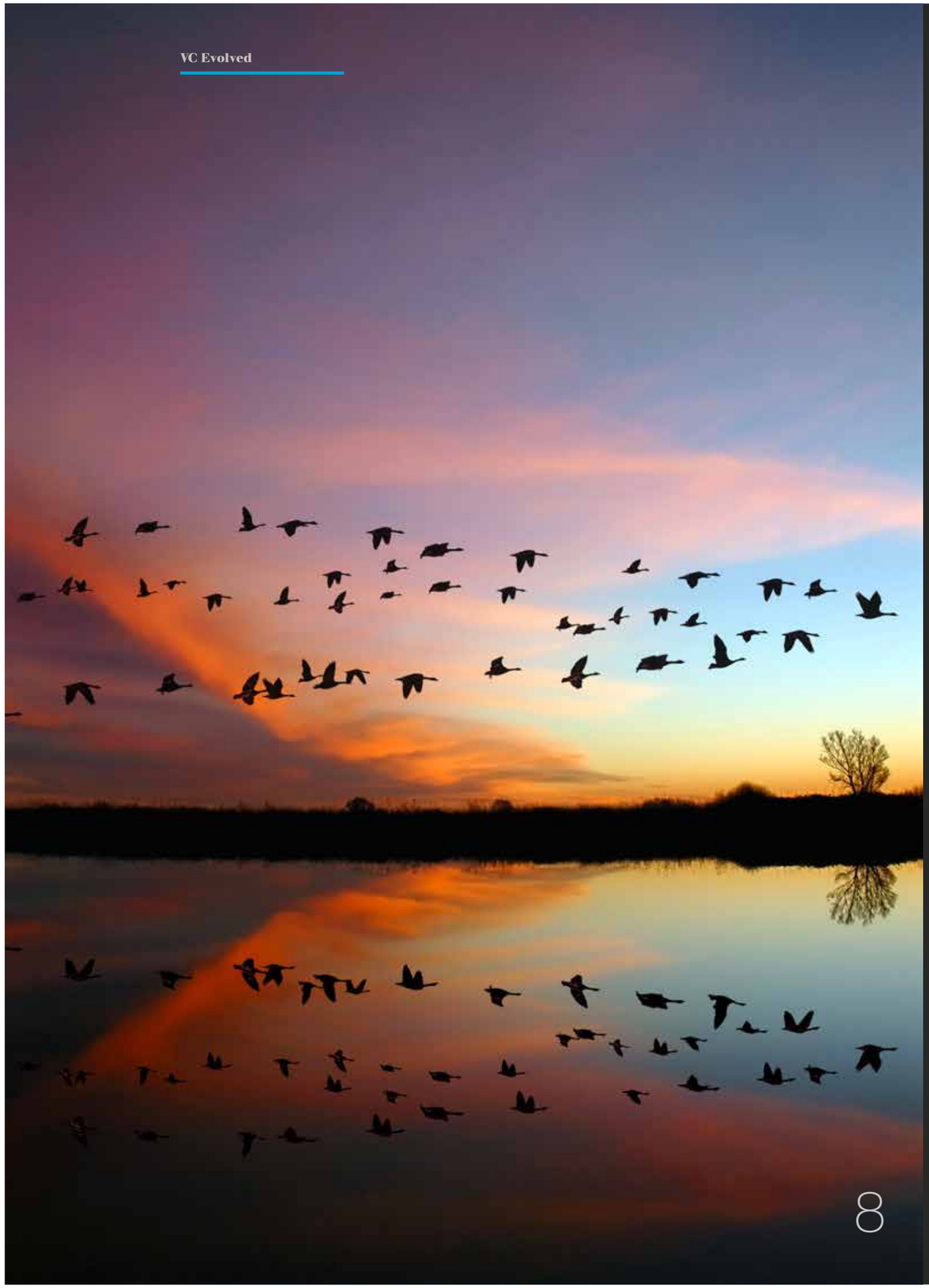
There have also been those who have made the development of the report possible: the connectors who make introductions across the world, and the advisors who reviewed and guided the development of this report. To those who provided this support, I would personally like to thank you. It's impossible to do this work without you.

James Clark
Policy Manager

NOTES ON SOURCES

Tracking change as it occurs is challenging. Though academic literature on the subject is limited, there is a wealth of information in online blogs, reports, data and articles from practitioners and the industry itself. We hope that by utilising these varied sources the report will be as comprehensive as possible and incite a reassessment of the venture industry as well as lively debate on its future.

VC EVOLVED CONTENTS



EXECUTIVE SUMMARY

In nature, environmental change inevitably leads to evolutionary change as organisms seek to respond to the shifting availability of resources. Mostly this happens gradually, but occasionally nature reshuffles the deck with mass extinction events – comet impacts, volcanic cataclysms and other natural phenomena – which provoke rapid and widespread change. In response to these events, evolutionary experimentation accelerates and it is the organisms which adapt quickly to these new and challenging circumstances that survive and eventually thrive.

Over the last decade or so, venture capital (VC) has been adapting in response to its own "extinction event". The collapse of the Dotcom Boom in 2000/01 brought to an end a period of extreme abundance. The amount of fundraising through 1998/99 peaked at levels unlike anything that came before, and – despite rumblings of a bubble at present – have not been seen since. Much of the capital deployed during the Dotcom Boom disappeared, taken down by collapsing businesses. While there are plenty of stories about companies with questionable (and sometimes non-existent) business models, much of the money in this period was lost due to the high levels of interdependence between companies. The Tech economy became, in effect, a house of cards. Yet, from this era emerged Tech giants like Amazon, which survived by rapid adaptation, and Google, which survived by staying private until 2004.

The venture capital industry staggered out of this cataclysm into a new world with the Tech VC community an obvious candidate for change. Tech was at the epicentre of the Boom and for a period after the Bubble burst was seen as a wasteland, a byword for folly. For VCs, it was immediately apparent that fundraising would be difficult post-Crash. Those who had raised at the peak of the market, whilst capital rich, had few opportunities to invest and saw their returns suffer. This proved especially challenging in Europe, where a rush of institutional money arrived far too late in the cycle to experience, on average, significant returns. This problem was exacerbated by the financial crisis of 2008 which snuffed out an emergent recovery. So while the US began to signal its recovery with the Google IPO, Europe's period of hardship has extended far longer, beginning to lift only in recent years.

Moving in parallel to these fundraising challenges in for VCs were a series of technological developments which have led to seismic shifts in the business models of their would-be portfolio companies. The promises of technology, only glimpsed during the Boom, have begun to arrive. The last decade has witnessed the global spread of broadband and mobile Internet, seen the introduction of hosted infrastructure and precipitous drops in the cost of market entry, and witnessed the ubiquity of social media, GPS and many other innovations.

The final evolutionary pressure facing VC has come from within, through a combination of philosophical and commercial pressures. Despite the relative abundance of institutional capital available in the US, some firms have chosen to limit their fundraising and indeed reduce fund sizes to pursue earlier-stage deals and ensure they deliver returns which justify the VC fee structures. At the same time, there are currently a record number of firms that have raised funds in excess of $1 billion, increasing their scale to take advantage of the trend for portfolio companies to remain private for longer periods of time.

In contrast, the current situation in the UK is markedly different. While some funds have increased in size, their intention was to move from venture into the realm of private equity. At the lower end of the market, some firms have simply been unable to raise new funds and have gradually faded away. Only firms who innovated – through either investment practices or fundraising methods – have survived to witness what appears to be a new era for UK startups.

For VCs in the UK, this dynamic new environment creates both opportunities and challenges. The opportunities come with a revival of animal spirits of both investors and entrepreneurs, both in the UK and abroad. However this energy will create challenges as is drives new evolutions in the industry that will bring issues for unprepared incumbents.

VC is Evolving

It may be tempting to think that revival of the market means that the VC model has no reason to evolve. Clearly, VC as a market will change over time as firms come and go. However, because of the longer lifecycle of VC funds, the response to these changes can take a number of years and give the appearance of a static industry. This report aims to prove otherwise. We believe that in response to both existential shocks like the Dotcom Crash, and environmental pressures caused by evolution within the Tech industry, VC is undergoing a period of intense and far-reaching change. General principles around fund size and investment cycles are being challenged and the lines surrounding investment stages are becoming blurred. New platforms are creating a completely new cadre of 'venture' investors as angels become VCs, VCs become angels and angel investing becomes as simple as investing in public markets.

The Purpose of this Report

The objective of this report is to provide the historical context for this evolution, starting with the Dotcom Boom and moving onto what we believe are the key influences that are driving change in the VC industry today. We believe that with this understanding it is possible to attempt some (tentative) projections on where these trends may shift in the future.

Many of these influences have arisen from the US and have yet to appear in the UK. Yet it is impossible to mistake the global influence that the US has on technology and venture capital. Because of this, VC Evolved has used developments in the US as a proxy or a predictor for future developments in the UK, and is structured accordingly.

The report will consider the following influences:

- The Dotcom Boom and Crash
- Advances of key technologies like the Internet, Broadband and Mobile
- Business model evolutions provoked by ubiquitous sharing, new infrastructure options and changes in labour
- The availability of new forms of capital
- Changes in the relationship between VCs and entrepreneurs

The report then considers the current state of play through:

- Evolving early stage with new roles for Seed, Angels and Accelerators
- Changes at later stage driven by the push to later public listings

The report will then take a tentative look at future consequences of several current trends:

- Globalism vs localism
- The implications of changes at early stage
- Managing the challenges of large funds

Finally, the report will consider how UK VCs can adapt to such changes:

- Early and late stage investment markets
- Making use of local competitive advantages
- Responding to long-term talent shortages

It is important to bear in mind that this is not a policy report. Instead this report is a challenge to the UK VC community. Over the last 15 years, the community has been forced to deal with rapid and almost overwhelming change. The landscape for investing and fundraising has changed considerably and the environment is a much harder place to do business. But today we see a resurgence in VC driven by the innovative businesses they have backed. VCs today have proven that evolution is possible and that there are actions that VCs can undertake to improve their chances of managing the uncertainties of the future.

After all, as Darwin never actually said:

It is not the strongest of the species that survives, nor the most intelligent. It is the one most adaptable to change.

VENTURE CAPITAL AND TECH

Tech as an industry term is something of a misnomer. We talk about Tech as if it is a discrete contained thing; a collection of businesses working within a sector of one of the industrial silos that comprise our economy.

The Importance of Venture Capital

Technology companies and venture capital (VC) share a long history. Since Arthur Rock brokered the investment required to seed Fairchild Semiconductor in the 1957, the relationship between high-growth technology companies and VC has only grown stronger. It is possible to grow a technology business without VC funding, but given that nine out of ten of the top companies on the NASDAQ[1] are venture funded, it certainly helps.

The reason for this close relationship is simple to understand – early stage Tech companies must cope with enormous degrees of uncertainty in everything from potential market size to viability of technology and untested business models. Yet this uncertainty is where opportunities for new and dramatic growth lie, so experienced sources of finance are vital to bring these businesses to maturity.

Debt finance, such as banks, are entirely unable to manage this type of investment risk as revenue streams may be limited or non-existent. Therefore the only option remaining is equity finance from motivated investors. VC brings capital plus operational and sectoral experience in growth companies. In doing so, it acts as a bridge between investors seeking high capital growth and innovative companies with high growth potential. This has always been the basis for the relationship between Tech and VC, but since the collapse of the Dotcom Boom, the relationship has been undergoing rapid and far-reaching change.

The Importance of Tech

Tech as an industry term is something of a misnomer. We talk about Tech as if it is a discrete contained thing; a collection of businesses working within a sector of one of the industrial silos that comprise our economy. Ask anyone to define Tech and you will probably get a fairly consistent response about the sorts of businesses that comprise Tech – websites, hardware manufacturers like smartphone makers, app developers and so on. These are indeed all forms of Tech, and they can be grouped together to a reasonably easy degree. Yet at another level, Tech is a vastly broader industry than it initially appears. Tech businesses run horizontally through the industrial base and touch upon industries from agriculture to automotive. Tech underpins the progress of these industries, whether it is new satellite mapping technology that increases the output of agriculture or the software that runs the engine management systems of modern cars.

Tech provides a large, growing and increasingly vital contribution to the UK economy. As a recent report from Policy Exchange noted:

> *The Department for Business, Innovation and Skills (BIS) estimates that, in 2011, the ICT sector contributed 8% to UK Gross Value Added (GVA). A report by NIESR found that government estimates of the size of the UK's digital economy using Standard Industrial Classification (SIC) codes underestimated the number of companies in the sector by over 100,000 – with their own analysis suggesting there were nearly 270,000 in 2012, 14.4% of all companies. The UK's app development market alone is predicted to add £4billion to the economy during 2014, and as much as £31 billion by 2025. As one newspaper article put it, technology 'already dwarfs utilities and communications and is only a couple of percentage points behind financial services.'*[2]

Tech is already vital to industry and in years to come will only become more so. It is not hard to conceive of a point in the future where Tech becomes as intimately entwined with all industries as finance… if it isn't already.

1 *This excludes Chinese company, AliBaba which will listed on the NYSE on September 19 with a market cap of around $225bn. This would place it around number four were it to have listed on the NASDAQ.*

2 *Source: Policy Exchange (2014) Silicon Cities. http://www.policyexchange.org.uk/publications/category/item/silicon-cities-supporting-the-development-of-tech-clusters-outside-london-and-the-south-east-of-england*

ENVIRONMENTAL INFLUENCES

We spent $5 million to move into a new three-story stucco building with jade-colored tiles we called "the Taj" (as in the Taj Mahal). It was also too small to keep pacewith our hiring frenzy, and people were sitting in the hallways. We rented a third parking lot down the street and ran shuttle vans to the office. (The neighbors hated us.) The kitchen was stocked like Costco, and when we fired the snack contractor for making our fridge look like the one in Philip Roth's Goodbye, Columbus, he asked for equity.

This was the time. In the next quarter, we booked $27 million worth of new contracts, and we were less than nine months old.

- Ben Horowitz.

The Dotcom Crash – A Financial Extinction Event

The infrastructure of the Internet had been growing since the 1960s when in 1990-91 Tim Berners-Lee at CERN, developed the protocols which created the foundation of the World Wide Web (the Web). Berners-Lee's development was a package of software that sat on top the infrastructure of linked servers on the Internet, enabling information to be created in pages. Because each of these pages contained a unique address (the URL) they were searchable and accessible through the use of a web browser. The first browser, known as Mosaic (later Netscape) was developed by Marc Andreessen in 1993.

For academics, the promise of the "access from anywhere" nature of the Web was seen as a way to connect the world of knowledge:

The World-Wide Web was developed to be a pool of human knowledge, and human culture, which would allow collaborators in remote sites to share their ideas and all aspects of a common project.[3]

For entrepreneurs, however, the possibility of reaching a global audience with a minimum of infrastructure provided completely different opportunities, including the opportunity to revolutionise existing business models. The first opportunity (and battle) revolved around managing the ever-growing web – browsers like Microsoft Internet Explorer and Netscape, alongside search engines like Yahoo! and Excite. It was the pre-profit IPO of Netscape in 1995 that announced the commercial scale of the Web-led revolution and was the spark that lit the touch-paper of a new boom. The second opportunity adapted traditional businesses in a new way with the introduction of e-tailing and online advertising. As more entrepreneurs awoke to the potential of the Web, a multitude of new businesses emerged. Most of these businesses were funded by an associated boom in the VC market by investors who were keen to replicate the success of Netscape and its investors. In this new environment of high expectation and low capital costs, the funding cycle rapidly increased as businesses burned through cash in a phenomenal growth phase. Amazon, the "online bookstore", was established in 1994 by Jeff Bezos with $40,000 of angel investment. By May 1997, the company had gone public with a market capitalisation of $438m.[4] The story was similar in the search engine market as Yahoo! and Excite were also sold at IPO delivering remarkable returns for investors.

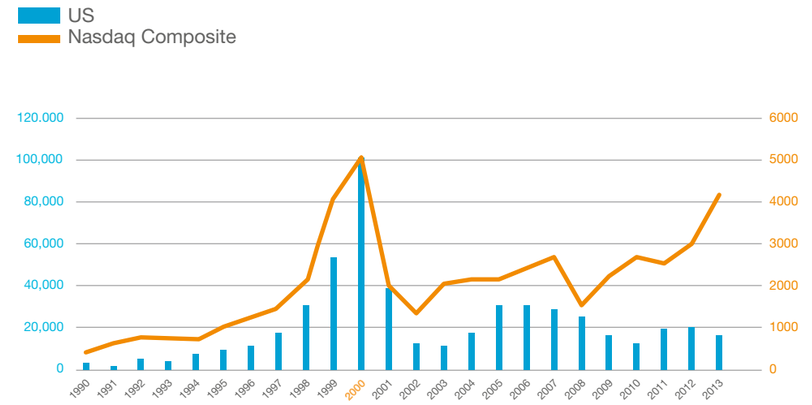
These exits incited an unprecedented period of VC fundraising, unlike anything before or since. The enormous levels of funding were mirrored by vaulting increases in the NASDAQ as businesses rushed to IPO into the most bullish of markets – as Figure 1 demonstrates. While the absolute numbers pale in comparison to those in the US, the also UK saw a rush of fundraising in response to activities overseas. Investors appeared swayed by potential rather than performance; Internal Rates of Return (IRR) for early stage VC in the UK had been muted[5] in the years preceding the peak of the Dotcom Boom.

3 *Source: Wardrip-Fruin & Montfort (2003) The New Media Reader, Cambridge, Mass.: MIT Press.*

4 *Source: Galante & Kawamoto (1997) Amazon.com IPO skyrockets - CNET News. http://news.cnet.com/Amazon.com-IPO-skyrockets/2100-1001_3-279781.html*

5 *Source: Burgel (2000) UK Venture Capital and Private Equity as an Asset Class for Institutional Investors. BVCA*

Figure 1 – VC Fundraising ($MN) US vs NASDAQ Composite



Sources: NVCA Yearbook 2014; NASDAQ

Even with the benefit of hindsight, it is difficult to appreciate the manic nature of the Dotcom Bubble. Businesses would emerge seemingly from nowhere, receive astounding amounts of VC funding one day, and IPO at even more astounding valuations shortly thereafter. Investor Ben Horowitz tells the story of his own business at the time, having taken nearly $100m in debt and equity funding:

We spent $5 million to move into a new three-story stucco building with jade-colored tiles we called "the Taj" (as in the Taj Mahal). It was also too small to keep pace with our hiring frenzy, and people were sitting in the hallways. We rented a third parking lot down the street and ran shuttle vans to the office. (The neighbors hated us.) The kitchen was stocked like Costco, and when we fired the snack contractor for making our fridge look like the one in Philip Roth's Goodbye, Columbus, he asked for equity.

This was the time. In the next quarter, we booked $27 million worth of new contracts, and we were less than nine months old.[6]

Businesses like Netscape, Amazon, AOL, Yahoo! and WorldCom emerged from nowhere to become household names. The NASDAQ rose from a trough of 327.55 in late 1990 to a peak of 5048.62 in the first quarter of 2000.[7]

It couldn't last.

Interest rates had been rising continually through 1999. Following a rush on the markets, the NASDAQ peaked on March 10, but by mid-March 2000 it had dropped by 10 per cent and some commentators had begun to realise the scale of the impending disaster. On March 20, 2000, Jack Willoughby writing in the industry publication Barrons published an article titled "Burning Up". The article looked beyond the hype of ever-increasing valuations and declared that the rate that startups were burning through funds was unsustainable. Given that many of these startups were in business of supplying services to other startups, much of the industry was, in effect, a house of cards:

6 *Source: Ben Horowitz (2014) The Hard Thing About Hard Things. HarperBusiness*

7 *Source: NASDAQ Composite History: http://www.fedprimerate.com/nasdaq-composite-history.htm*

Any financial problems at these Internet firms would affect the myriad companies that supply them with equipment, including such giants as Cisco Systems and Intel. Another consideration is that a collapse in highflying Internet stocks could have a depressing effect on the overall market and on consumer confidence, too. This, in turn, could make Americans feel less wealthy and cause them to spend less money on everything from cars to clothing to houses.

It's no secret that most Internet companies continue to be money-burners. Of the companies in the Pegasus survey, 74% had negative cash flows. For many, there seems to be little realistic hope of profits in the near term. And it's not just the small fry who are running out of cash. Perhaps one of the best-known companies on our list, Amazon.com, showed up with only 10 months' worth of cash left in the till.[8]

As it was, Amazon survived, but just barely. In everything else, Barrons was correct. The collapse of some precipitated the collapse of many; likewise the collapse in confidence surrounding startups affected confidence in all Tech stocks. The NASDAQ lost half its value in six months and three quarters of its value in 18 months as startups burned through their cash reserves. The Tech industry and the VC industry that had fuelled it became a wasteland. VCs in the US who had managed to raise over $100bn in 2000, raised barely 10 per cent of that amount in 2003.[9]

Tough Times in UK Venture

If the situation in the US was bad, it was even worse in the UK, where the venture industry had seen its biggest fundraising year in 2001 as Limited Partners (LPs) rushed in late in an attempt to get a piece of the Dotcom bonanza. UK VCs raised well over $4.2bn, but by 2002 saw fundraising drop to $1.1bn, with just under $400m[10] raised by 2004.

Adding further pain for the UK industry, the stronger fundraising in 2000 and 2001 lowered the average IRR for all funds throughout the following decade.[11] As a consequence, most LPs who joined the rush to invest in UK venture late in the Dotcom Boom only experienced the pain of the Crash with little upside.

In the years since the Dotcom Crash, the search for answers in the UK investment community has been long and painful. A reason commonly cited within the industry suggests General Partners (GPs) were victims of their own success in fundraising. LPs piled into already overheated markets, causing a glut of capital and effectively depressing average returns for the whole industry. This, as a result, masked genuinely successful funds within a mass of poor average returns. Figure 2 demonstrates that the strongest periods of fundraising in the UK occurred in 2001 after the Dotcom Crash and in the lead up to the 2008 Financial Crisis.

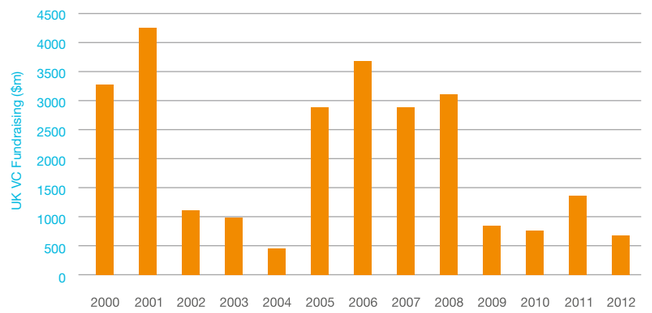
8 *Source: Willoughby (2000) Burning Up. Barrons*

9 *Source: NVCA Yearbook 2014*

10 *Source: BVCA Report on Investment Activity (RIA) 2000-2005*

11 *Source: BVCA Performance Measurement Survey (PMS) 2014*

Figure 2 – UK VC Fundraising 2000 – 2012.



Source: BVCA

Yet as research by Alexson and Martinovic[12] shows, these periods coincided with low levels of median experience amongst European GPs (which can be considered a proxy for the UK). This ties in with a criticism directed at the VC industry itself – that it lacked the experience to invest and guide portfolio companies. A common critique of UK VC at the time (and since) was that investment teams were dominated by those with a finance background and not enough industry experience. Unfortunately, there is not sufficient data to test this critique. However, we do know that specialist experience is more valuable that generalist experience; as Gompers, Kovner and Lerner[13] have found, specialisation vs generalisation is a crucial aspect of VC success:

The poorer performance by generalists appears to be due to both an inefficient allocation of funding across industries and poor selection of investments within industries. Venture capital organizations with more experience tend to outperform those with less experience.

Encouragingly, the UK has seen steady growth in the experience level amongst its GPs, yet most of it has been a recent phenomenon. When Google went public in 2004, the US industry could point to it as a sign of revival and the return of business as usual. Furthermore, many Dotcommers had now become GPs, further boosting the industry. In contrast, more pragmatic UK VC firms began to move out of early stage investing following the opportunities and consistent returns of private equity investment instead. For VCs who stuck with early stage investing, there was precious little good news as LPs steered clear of the industry until 2005 when they saw a recovery in fundraising which lasted until the financial crisis in 2008. Yet this return to stronger fundraising could be better explained by the strong finance markets themselves, rather than improved returns in venture. In the years since the Dotcom Crash, the average IRR of new funds raised sat at -4%, with only the top decile of funds raised after 2002 returning a respectable 14%.[14]

In this hostile environment, many VCs who raised funds during the Boom no longer exist and VC itself has atrophied. This was the unlikely stage for a revival in the industry in the last 18 months. However, it wasn't that VC itself had changed, but had that change was forced upon it by the very businesses it had helped to build.

12 *Source: Alexson & Martinovic (2013) European Venture Capital: Myths and Facts. BVCA*

13 *Source: Gompers, Kovner & Lerner (2009) Specialization and Success: Evidence from Venture Capital. Wiley*

14 *Source: BVCA Performance Measurement Survey (PMS) 2012.*

CRITICAL EVOLUTIONARY DEVELOPMENTS

If their investors were struggling through a post-Crash environment that appeared to them an existential threat, innovators in the technology industry found the post-Crash environment ripe for technological evolution. From the few companies who survived the Dotcom Crash, the Tech industry experienced a form of 'hyper-evolution' in the form of a rapid, virtuous cycle of technological innovation. This has not only changed the game for startups, but has also forced change for the VC industry worldwide. The following sections outline a series of factors which provided the greatest evolutionary influences in the post-Crash environment.

I Love It! Now Make It Free

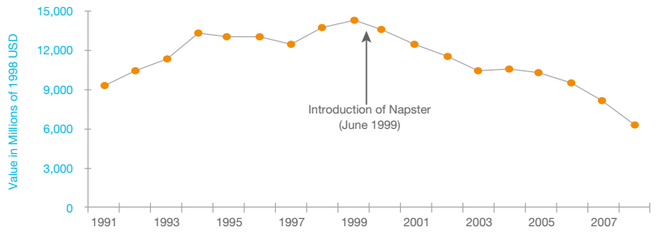
Few Tech company founding myths fit the stereotype quite like the origin of Napster – a couple of college dropouts create a company that upsets an entire industry and, for better or worse, changes everything that follows. There was a lot of that going on when Shawn Fanning and Sean Parker created Napster in 1999, but whereas many of their contemporaries like Google succeeded or failed based on the vagaries of the Dotcom Boom, Napster failed because it was too disruptive, even to reap the rewards of the change it brought.

It is not difficult to see why this is the case. There is no doubt that the arrival of the Web and its ease of distribution created a degree of concern amongst content providers, but for the music industry in particular, the world would be sharply split into pre- and post-Napster. As noted by Seung-Hyun Hong from the University of Illinois:

> *According to the Recording Industry Association of America (RIAA), the total real value of shipments in the United States had reached its peak of $14,270 million in 1999. After Napster appeared, the total real value of record sales decreased by 5% in 2000, 6.7% in 2001 and 9.6% in 2002, and continued to decline through the 2000s.*[15]

The nature of this change is stark when represented in data from the RIAA:

Figure 3 – Total Real Value of Recorded Shipments in the US[a]



[a] Refer to the RIAA's Yearend Statistics. Total sales include CDs, cassettes, LPs, and music videos. Starting from 2004, total sales also include digital formats such as legitimate download.

Source: RIAA

Seeing their sales fall precipitously, the music industry faced a problem. Unfortunately for Napster and its millions of users, the music industry responded through the courts and saw Napster shut down in 2001. It was, however, a Pyrrhic victory. Apple launched iTunes in 2001 and the iPod shortly after, the music industry still fighting for its unsustainably high margins had lost control of its market.

Arguably, however, the fallout did not stop with the music industry. Hong's study includes this in its conclusion:

> *I find evidence suggesting that file sharing can account for about 20% of the sales decline in recorded music during the Napster period, and that this negative effect is concentrated in households with children aged 6-17.*

This detail is crucial. It tells us that not only did Napster capture university students, but that it also captured the generation that would follow: those who would go on to found the Tech companies that would drive the development of social media and the app industry. Effectively,

15 *Hong (2011) Measuring the Effect of Napster on Recorded Music Sales. University of Illinois. http://faculty.las.illinois.edu/hyunhong/napster.pdf*

the founders and their customers had become accustomed to getting what they wanted, for free and without being bombarded by advertising, and this would have a significant impact on the business models of future Tech companies.

The concept of free virtual goods was not invented by Napster – companies like Adobe had been providing free versions of basic software for some time, and services like Yahoo! and Netscape were also free, but it could be difficult for users to quantify their precise value. Music, however, was an easy comparison as anyone could compare the price of a CD (which for many already felt overpriced) with free, downloadable music.

What Napster created was a mainstream expectation of 'Free'. 'Free' brought the ability for users to sample and experiment; the key metrics of 'Free' became growth and interaction time. 'Free' completely changed Tech business models; the objective of 'Free' became user growth now, revenue growth later. The exemplar of this change was Facebook – the company was free to join, displayed spectacular growth, fought against the temptation to submit to advertising and grew beyond a billion users. Yet 'Free' is not without challenges. Facebook battles with its own user base, with its every effort to monetise comprising a trade-off between increased revenues and contented users.

Today much of the consumer-facing side of the Tech industry begins with free or close to free as the basis of their business models. In social media, free is a strong starting point, with examples like Facebook and Twitter leading. In apps and game development,[16] the Freemium[17] model seems to have become a standard starting point for the industry with many views[18] on how best to apply freemium models. The music industry, too, has settled on either cost per song or subscription models for streamed music to get the perceived cost of the product as close to zero as possible.

All of these models have taken an approach that starts with zero and works upwards to a point of profitability.

16 *Source: Moscaritolo (2012) Forty Percent Say Yes to In-Game Purchases. PC Magazine*

17 *For details on this term visit: http://en.wikipedia.org/wiki/Freemium*

18 *Source: On Startups: Freemium Pricing Models for SaaS (2012) http://onstartups.com/tabid/3339/bid/84427/Freemium-Pricing-for-SaaS-Optimizing-Paid-Conversion-Upgrades.aspx*

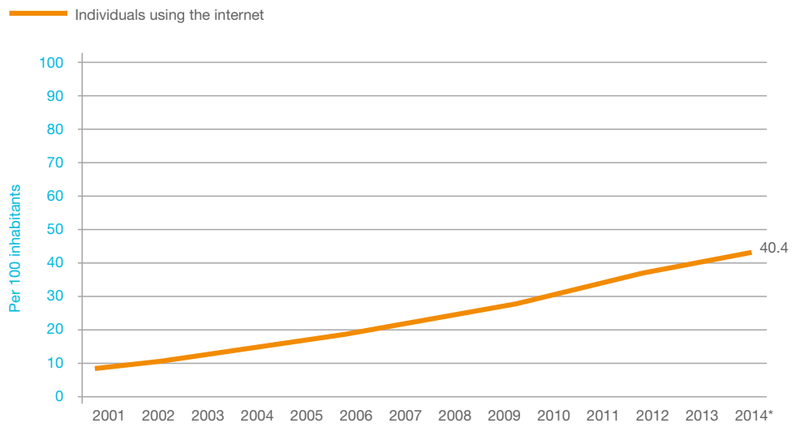
The Internet Goes Further

The primary driver of the Dotcom Boom was the emergence and commercialisation of the Web at the beginning of the 1990s. The Web, with its potential for commerce with a global audience of millions and the transference of information, seemed limitless. Yet it took time to come to fully deliver on that potential.

When Amazon went public in May 1997, only 11% of the developed world had Internet access. The global average was a mere 2% penetration. Even at the peak of the Boom in 2000, penetration in the developed world was 31%, the developing world only 2% and the average just 7%.

Today, however, developed world penetration stands at 78%, the developing world at 31% with a global average of 40.4%.[19]

Figure 4 – Global Internet Access, 2001 - 2014



Source: ITU World Telecomunication /ICT Indicators database

Indeed, with a user base of around 1.2bn today, there are twice as many Facebook users as the global average Internet penetration in 2000. This was the potential of the Internet that investors glimpsed during the Boom years. Yet it was mostly just potential; the Internet, whilst wildly popular in the public imagination, had not taken hold in a way that could deliver the impact it had promised. Furthermore, the burn rates of many Dotcom companies were too high to last long enough for the growth in penetration. This growth would follow the Crash, and the businesses able to survive it would be the ones to benefit.

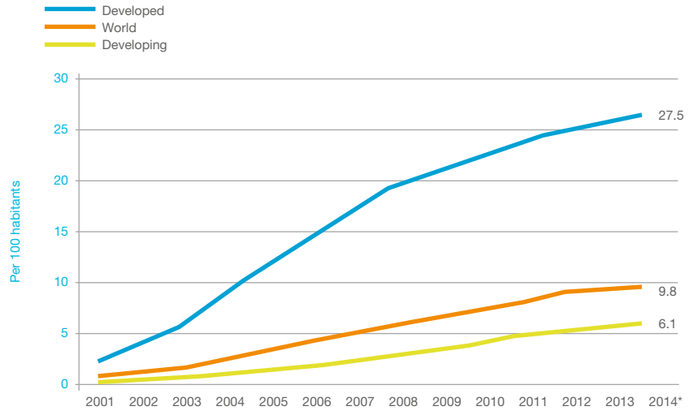
19 Source: International Telecommunications Union

The Internet Goes Faster

If the potential of the Internet to reach ever wider audiences managed to catch the interest of Dotcom investors, the potential of broadband Internet to distribute rich media to those audiences managed to fire their imagination. The arrival of online file sharing by services like Napster demonstrated the enormous demand that rapid file sharing could unlock. This was further enhanced by the prospect of sharing other forms of rich media files online as well as data-heavy websites. Broadband had the potential to enrich the potential of the Web in a variety of ways, turning static into dynamic and transforming what was mainly an information portal to one of entertainment.

Unfortunately for investors, however, the potential during the Boom did not align with reality. While broadband did exist in 2000 in the forms such as ADSL, the subscription costs restricted its use to data-heavy businesses with very little uptake in the general population who stuck with dial-up well beyond the Crash. By 2004, penetration rates for fixed-line broadband were only 7.2% amongst the OECD and 2.5% on a global average.

Figure 5 – Fixed (wired)-broadband subscriptions per 100 inhabitants, 2001 - 2014

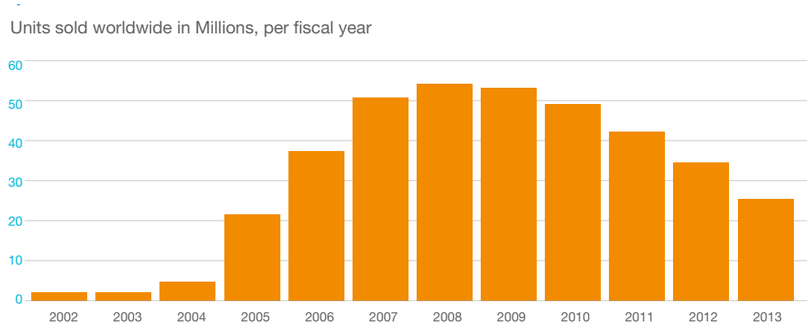


Note: * Estimate

Source: ITU World Telecommunication / ICT Indicators database
The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx

However, as Figure 5 indicates, midway through the 2000s, broadband penetration in the developed world began to rapidly increase as development of infrastructure brought down costs to consumers. This growth in access was supercharged by growth in consumer demand for ever more data-hungry consumer services. Figure 5 shows the increases in broadband penetration were reflected in sales of consumer products that relied on this data capacity, in this case the rapid sales growth of the Apple iPod:

Figure 6 – Sales of Apple iPod



Source: Apple Inc

As is evident in Figure 4, there was a noticeable tapering of fixed line broadband subscriptions from 2006-2007 onwards. This should not be taken as a slowing of the penetration of broadband. Indeed, it was an indicator of a new phase of broadband, one with far reaching consequences for VCs, the Tech industry and society in general.

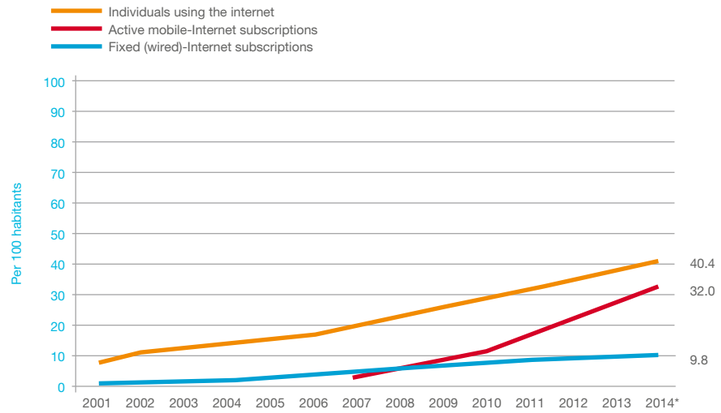
The Internet Goes Everywhere

Although access to the mobile Web had been possible since 1996 with devices developed by Nokia, it wasn't until around 2004-2005 that mobile data began to take hold on the back of two ground-breaking families of mobile devices. The first was the BlackBerry family, from Canadian firm Research In Motion, which popularised email on-the-go. The Internet had suddenly became portable. With this growth in users came a demand for improved mobile data infrastructure.

The next major advance came with Apple's iPhone, which went one step further, adding many functions of a desktop with the use of apps created by third party developers. People were freed from their seats and mobile Internet leapt.

Figure 8 below illustrates global Internet access, including data for fixed-line and mobile Internet, and demonstrates the acceleration of global access which coincided with the increases in Internet-capable mobile devices.

Figure 8 – Global Internet Access

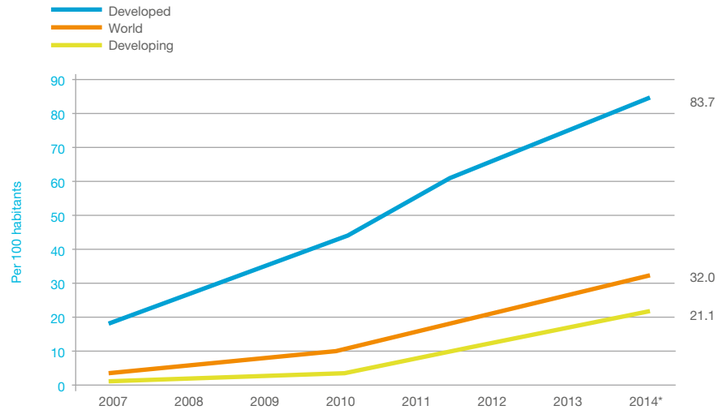


Note: * Estimate

Source: ITU World Telecommunication / ICT Indicators database

Figure 9 shows the rapid growth in mobile broadband access since 2007, with sharp rises in both the developed and developing world, providing greater coverage, even in areas with poor fixed-wire coverage. In just seven years, the mobile Internet has come to dominate platforms with Internet access, with mobile penetration in the developed world growing from less than 20% to over 80%.

Figure 9 – Active Mobile-Broadband Subscriptions



Note: * Estimate

Source: ITU World Telecommunication / ICT Indicators database
The developed/developing country classifications are based on the UN M49, see: http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx.html

As consumers became familiar with carrying very powerful computers in their pockets, accessing the Internet at broadband speeds became a permanent state rather than just a discrete action. With mobile broadband, business models that relied on immediate and timely data became possible. The emergence of mobile applications formed an entirely new part of the economy, currently contributing £4bn to the UK economy[20] and is expected to continue to grow in the years ahead. Much of this growth would not have been possible without the outsourcing of infrastructure.

Outsourcing of Infrastructure

At the height of the Dotcom Boom, raising millions in VC became a rite of passage for many startups. Scaling a fledgling Dotcom business without this capital was impossible, for while the storefronts of many Dotcom businesses were virtual, the infrastructure that supported them was real. With millions of customers using these websites, expensive hardware needed to be purchased and maintained. From the servers upwards, every Tech startup had to be self-contained and able to host the activities of its growing business. With this infrastructure came the need to manage and maintain systems, all of which added to the overheads of startups. Consequently, a significant proportion of early stage VC was put towards capital expenditure and necessary fixed overheads. All of this happened before a startup had even tested its business plan on the market.

By the mid-2000s however, the increasing presence of broadband amongst businesses in the developed world presented smaller businesses with the opportunity to scale up. As NESTA pointed out in their discussion paper "The Startup Factories":

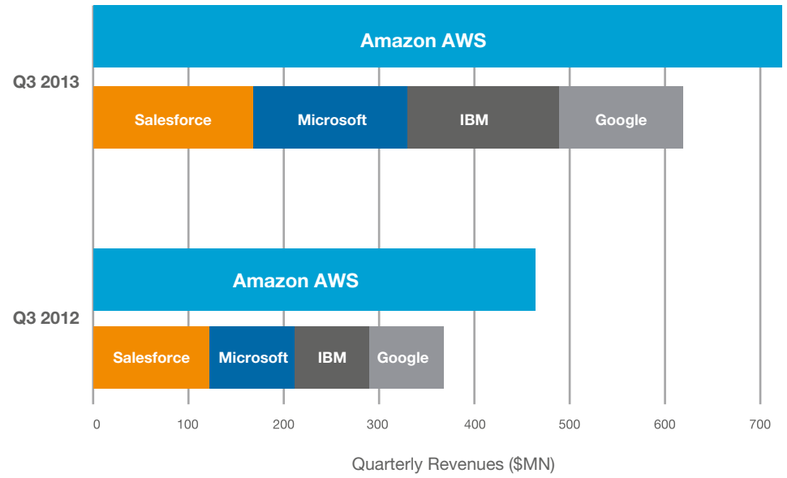
> *It costs less than $0.16 to host one Gigabyte per month using Amazon Web Services in 2011. In the year 2000 hosting costs were roughly $19 per Gigabyte and that involved buying your own hardware which needed maintaining too. Effectively hardware costs have fallen by a factor of 100 over ten years.*[21]

One of the most significant businesses to influence this drop in storage costs was Amazon via Amazon Web Services (AWS). First conceived as a method of creating a revenue stream from unused server capacity, it was an idea not far removed from its practice of stocking other's products in its warehouses. Within a few years, AWS became a significant revenue generator, dominating the market to the extent that its revenues exceeded its four largest competitors – Google, Microsoft, Salesforce and IBM – combined.

20 *Source: Policy Exchange (2014) – Silicon Cities.*

21 *Source: NESTA (2011) The Startup Factories http://www.nesta.org.uk/publications/startup-factories*

Figure 10 – AWS IaaS/PaaS Revenue Growth Comparison



Source: Synergy Research Group

In some ways this was a return to the past for computing where 'dumb' terminals accessed a central server for their processing needs. This time, however, it was different. It meant that businesses could be entirely virtual and server capacity could be rented monthly on flexible terms to allow for scale, greatly reducing capital expenditure requirements and management overheads. This outsourced infrastructure has since become known as "the Cloud" – an appropriate term given its pervasive yet ephemeral nature.

The potential of this outsourcing exploded with the launch of the iPhone in 2007. Despite the beauty of the device, the real potential it unleashed was the opportunity for 3rd party app developers. Many app developers had sophisticated databases and server requirements, but because of the potential of cloud-based infrastructure, were able to keep capital costs low. By doing so, they could operate extremely cheaply and businesses that would have required millions of VC dollars to operate during the Dotcom Boom could now function with a considerably smaller budget, possibly even being self-funded. With such cloud infrastructure, VC investment remained vital but mostly at growth stages, once a business model had been proven. Businesses could now afford to test and retest business models, produce and distribute products, and develop extensive user bases before needing to seek funding. In this environment, small amounts of capital could go a very long way. This has proven useful, as the last few years have seen an explosion of seed capital.

Increasing Labour Costs

While the cost of Tech infrastructure has dramatically fallen in the past decade, another overhead has risen just as dramatically – labour costs. This effect is particularly acute in established technology clusters. In 2012 the Wall Street Journal covered the sharp increases in labour facing Silicon Valley:

> *Tech-jobs website operator Dice Holdings Inc. said salaries for software and other engineering professionals in California's Silicon Valley rose 5.2% to an average $104,195 last year, outstripping the average 2% increase, to $81,327, in tech-workers' salaries nationwide. It was the first time since Dice began the salary survey in 2001 that the wage barometer broke the $100,000 barrier, said Tom Silver, a Dice senior vice president.*

> *The findings come amid a Web boom that has fuelled companies such as Facebook Inc., Zynga Inc. and Twitter Inc. Last year, several of the companies – including LinkedIn Corp. and Zynga – went public, with Facebook poised for an initial public offering this year. Their success has sparked the creation of numerous new start-ups, which in turn has spurred a hiring war for software engineers and others.*[22]

These conditions have only become more acute in recent years. This has led to increases in seed round sizes, driven to a notable extent, by the entry of VCs. Observing conditions in the US, Tomasz Tunguz of RedPoint Ventures has identified a rapid increase in supply of VC investment at seed level:[23]

> *For the past several years, early stage VCs have entered the seed market with vigour. VC's entry has resulted five different important trends in the past five years:*
>
> *— The total dollars entering the seed market has increased by 132%.*
>
> *— The mean seed round size has increased by 114% to $1.4M.*
>
> *— VCs' typical seed investment has grown by 50%.*
>
> *— Mega-seeds, those seed investments over $2M, have reached historic highs exceeding 80 instances in 2013.*
>
> *— The mean mega-seed round is $2.26M during the past five years but in 2013 that figure reached $2.8M, which implies mega-seeds have replaced traditional early Series A.*

This growth has led to two forms of supply and demand interacting: an excess of supply in VC and a growth in demand for skilled workers – especially those with technical skills – amongst startups. As the quote from the Wall Street Journal indicates, these startups compete for labour with fast growing and already successful firms such as Twitter, Salesforce, Apple, Google and Facebook for the best staff. Even with the gravitational pull that Silicon Valley asserts globally, there still remains a shortage of talent. Add to this the demand for the best from well-funded startups, and the deep pockets of incumbents have seen labour costs spiral. As a result, many startups have been forced to raise millions in seed funding just to attract or retain top staff; in a recent profile of Clinkle, a particularly extreme example of this trend, Business Insider put it this way:

> *The kicker: The app hasn't launched yet and it isn't going to for a few more months. Duplan's 50-person team raised the entire $25 million – the largest seed round in Silicon Valley history – on a mere working prototype and a beta test at Stanford University.*[24]

22 *Source: Wall Street Journal http://online.wsj.com/news/articles/SB10001424052970204624204577179193752435590?mg=reno64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2FSB10001424052970204624204577179193752435590.html*

23 *Source: Tomasz Tunguz http://tomtunguz.com/vc-seed-strategy/*

24 *Source: Business Insider http://www.businessinsider.com/lucas-duplan-raises-25-million-seed-round-for-clinkle-2013-6*

While the UK has experienced similar demands for talent, it has yet to see this trend impact as significantly. However it would be mistaken to believe that talent shortages won't impact at some point in the future, especially in places like London as a recent article noted:

> *To be successful, Britain must attract and retain the most talented scientists, engineers, designers and coders. Yet currently we face a chronic shortage of workers with these skills; one million technology jobs need to be filled by 2020.*[25]

While supply in the UK is certainly constrained, it could be speculated that the reason for lower labour costs is based on demand. First, as outlined earlier, the UK VC industry has struggled to fundraise since the Dotcom Crash. This has had varied effects: there have been fewer high growth Tech companies to cause a spike in salaries for key staff; even fewer have gone on to become larger established companies to compete with smaller companies for staff; and some have moved to Silicon Valley in pursuit of this growth. Second, while it is true that the UK plays host to companies like Google, Facebook and Amazon, their recruitment activities do not focus so heavily on key engineering talent so much as marketing, sales and business operations – areas in which the UK already has deep pools of talent. This is not to say that UK businesses do not employ engineers, but rather that, unlike Silicon Valley, the bigger players do not drain as much of the talent pool and the cost of labour is not affected so dramatically.

Fast Growing Seed

In the last few years there has been an odd symmetry in the UK and US with regards to an increase in available seed capital.[26] While seed capital available in both countries has increased, the reasons for their respective increases have been markedly different.

Despite the numerous booms and busts in the last 15 years, the US has not experienced a serious shortage of seed funding. There is an established culture of successful entrepreneurs helping to fund following generations of businesses, and places like Silicon Valley, in particular, have produced personal wealth for many successful entrepreneurs over the decades.[27] Because of a pervasive culture of reinvestment, a portion of this wealth streamed back into Silicon Valley's startups with a snowballing effect. The second factor behind the flourishing of seed capital has been the ease with which capital could be deployed. In recent years, informal business networks in well-established startup areas such as Silicon Valley, Boston and New York have become supplemented by new institutional vehicles such business accelerators (discussed later), online investment platforms like AngelList and crowdfunding platforms like Kickstarter. The combination of these factors has resulted in a significant drop in the 'friction' involved with investing, enabling promising businesses (and plenty of unpromising ones) to raise seed finance in an environment where investors are looking for the next Google or Facebook.

In the UK the story is differs in two ways - the arrival of abundant seed capital, and its source. As recently as 2012, the UK was experiencing a serious funding gap at seed stage. Indeed, it was suffering gaps at multiple stages, but seed was especially critical as many startups were unable to source the funding needed to simply get going. Building on its already highly supportive suite of incentives,[28] the UK Government introduced the Seed Enterprise Investment Scheme (SEIS) in 2012. This fiscal policy initiative operated in much the same way as the existing

25 *Source: Tech City Insider (2014) http://www.techcityinsider.net/policy-matters-for-uk-clusters/*

26 *Unfortunately, whilst it has become easier to estimate the amount of funding available, precise measurement of seed investment is difficult. Capturing data at seed round has always been challenging – angel investors rarely disclose investments, and for many years, little effort was made to systematically capture the information. In recent years however, this has begun to change with the rise of global public platforms like AngelList and Kickstarter, as well as information databases like CrunchBase. In the UK we have recently seen efforts by the UK Business Angels Association and the Centre for Entrepreneurs to capture this data through the Nation of Angels research initiative.*

27 *Post-Crash, PayPal was sold for $1.5bn in 2002. Google signalled the revival of the market with its IPO in 2004. The current environment has benefited from a number of high profile IPOs: Facebook (2012), LinkedIn (2011), Zynga (2011), Groupon (2011). Also included would be numerous trade sales, further increasing the availability of seed capital.*

28 *See Appendix 1*

Enterprise Investment Scheme (EIS), but was focused chiefly on targeting earlier stage investors. Instead of investments of up to £1m covered by EIS, SEIS covers investments by individuals of up to £150,000. The intention of the Government was to open a new supply of equity investment to businesses seeking funding in the range of tens of thousands of pounds.

The second part of the turnaround in seed funding for UK startups is similar to the US – a flourishing of new institutionalised seed investment. Like the US, the UK has experienced a rapidly growing market in business accelerators and new forms of online investments, especially surrounding crowdfunding. Donation-based crowdfunding sites like Kickstarter have entered the public consciousness, but in the UK the Government can take credit for taking things a step further. In little more than two to three years, innovative offerings like equity crowdfunding have begun to establish a toe-hold in seed investments. At a time when equity crowdfunding is still illegal under US law, the Financial Standards Authority (FSA), later the Financial Conduct Authority (FCA), has taken a benign view of these new forms of funding and within reason, allowed them to flourish.

Startups Everywhere

The combination of reduced costs and increased ease of creating a Tech startup, coupled with an increase in simplicity of reaching new markets and global virtual storefronts has seen a rapid increase in the number of new Tech businesses worldwide. In addition to these factors, local developments have significantly increased the prominence of entrepreneurship in the UK, as Matt Clifford of Entrepreneur First explains:

> *Amongst other factors like support in fundraising and radically lower infrastructure costs, we have observed a decrease in the attractiveness of the financial services industry as a career option. Financial and related professional services have for several decades been the "default" home for the most talented and ambitious young people in the UK. The financial crisis and subsequent regulatory and social backlash has made entering the sector seem less attractive – and the technology and startup sectors have benefited.*

The rate of business creation in the UK has consistently grown since the turn of the new century and whilst it would be overstating the case to say that Tech is the primary reason, the hugely positive perception of entrepreneurship in the Tech industry should not be underestimated as a factor in the increase in UK startups. Indeed the sort of positive culture across all aspects of UK entrepreneurship that has emerged in recent years is a reflection of the positive condition that is inherent in the Tech industry. This marks something of a cultural change for the UK where corporate or public service careers were seen as the socially acceptable choice following education. Instead, in the Tech industry "doing a startup" has become aspirational, with many graduates seeking to start their own businesses, or work in startups directly out of university.

The Power of the Founders

There has been an interesting narrative in the change of relationships between founders and investors in the VC-backed Tech industry over the last decade.

During this period, there has been a palpable shift in emphasis onto supporting founders to allow them to drive the business as far as possible. One example of the phenomenon is exhibited by the so-called "Zuckerberg Effect"; while not by any means the first to do so, the combination of the Facebook founder's age and the amount of control he retained over his company signalled an industry-wide rethink about the control founders should retain over their businesses. However this factor is attitudinal and harder to state categorically as a driving force.

More plausible has been the impact from a wave of founding and investing which followed the successful exists of the Dotcom Boom such as PayPal, Yahoo, Netscape and others. The founding teams of these companies, carrying on the tradition set by Fairchild Semiconductor

in the 1950s, moved on from these companies, with both capital and experience to spare. In the case of Paypal, their progeny included seven businesses worth in excess of $1bn, amongst them Tesla Motors, LinkedIn and Palantir. This repeated success was reasonable proof to any who questioned that founders were capable of success without intervention. Even Google, which famously came in for "adult supervision" with the appointment of Eric Schmidt as CEO, eventually reverted to the control of its founders in 2011.

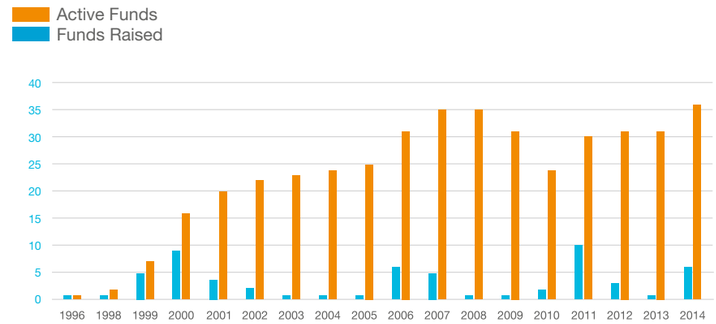
Founders now wield considerable control over their businesses and investors (many of whom are former founders themselves) and have begun to accept these circumstances as the price that must be paid to get involved in the best deals. Combined with the drop in capital costs, which enables for funding to go further at seed stage and new methods of doing business, founders are able to exercise control of their companies for longer that was previously the case.

The Billion Dollar Club

The height of the Dotcom Boom saw fundraising activities far in excess of anything seen today; peaking in 2000 at over $100bn per year in the US; the UK saw its fundraising peak in 2001 with £13.6bn raised.

Today we find ourselves in a very different situation. As examined earlier in Figure 1, the total amount of funds raised is not even close to that raised during the boom, yet an increasing number of VCs are raising funds over $1bn. In Figure 11, funds over $1bn are relatively uncommon, but since 2011 there has been a significant and increasing number of active funds over $1bn. Furthermore, as funds typically last for 10 years, those raised during the Dotcom Boom would have been doing very little investing later in their lifespan. So the activity since 2011 is significant as there has been a spike both in the total number of funds, as well as in the number of funds in their most active periods of investment:

Figure 11 – Number of VC Funds $1bn and Over



Source: Pitchbook

In the early to mid-2000s the impulse behind the changes was a consolidation of the industry driven by factors like the Dotcom Bust, as well as the all the factors described above. However in recent years the push for bigger funds is mostly driven by the trend for companies to go public far later than was previously the case. Despite going public later, companies still need investment to grow, to ensure they avoid dilution, VCs have been forced to raise ever larger rounds. Once a relative rarity, the number of funds in excess of $1bn has become increasingly common. According to the National Venture Capital Association (NVCA), 10 VC firms accounted for 48% of funds raised in the US in 2012. As will be examined later in this report, this development is far-reaching impacts impacts across the industry.

CURRENT OVERVIEW

The range of developments described in this report have led to significant structural change in the VC industry. Crucially, although the circumstances behind various contributing factors differed in the US and the UK, the consequences are remarkably similar for both. First, although the source of supply is different from that of the US, early stage finance is becoming abundant in the UK. Combine this with new online platforms for raising finance and we see a synchronisation of the mindsets of entrepreneurs at the early stages. Second, and at the later stage, VC is becoming increasingly international. While UK-based VCs have long been required to travel outside the UK in search of investments, US investors are now increasingly doing the same. Simultaneously, as entrepreneurs have begun to take an agnostic view about the location of their business (so long as it supports their growth ambitions) and high labour mobility, VC is far less regionalised than it once was. As a result, the environment for entrepreneurs and VCs today is evolving at a rapid pace as a new range of factors have come into play.

Accelerators Everywhere

The business accelerator is a relatively new development; the legendary Y Combinator was formed by Paul Graham in 2005. However, its predecessor, the business incubator, has been around since the 1950s achieving a peak during the Dotcom Boom. Business accelerators and incubators differ in a number of important factors. The latter were primarily part of the commercial activities of universities and provided space and facilities for startups in exchange for substantial amounts of equity (up to 20%). The model for business accelerators, as demonstrated by Y Combinator offer something different. Office space was part of it, but the real value came with the short intense development programme, a small amount of capital, access to extremely high quality mentorship and a pressure cooker environment that was designed to force the "acceleration" of the startups towards a final presentation to prospective investors at the conclusion of the course. The "cost" of this to Y Combinator participants is 7% of equity. If Y Combinator created the model, the explosion of early stage funding has created the market, and in recent years the market for accelerator and accelerator-like programmes has taken off. According to the Tech.eu, a European Tech industry blog, there are now 33 accelerators in the UK alone.[29] Many accelerators have begun to carve out strong reputations for quality graduates and have been welcomed by VCs and other later stage investors. Some of these, like Seedcamp and TechStars in London and Ignite in Newcastle are generalist accelerators, attracting a wide variety of startups, whilst others have chosen to tackle specific industries and sectors such as Level 39 and The Bakery in London, which focus on finance and marketing respectively. As Paul Smith, co-founder of Ignite explains:

> *We've seen a massive growth in the number of programmes here in the UK, some are incubators, some are accelerators, and there's a lot of hybridisation. So whilst it's interesting to see Tech.eu try and put a number to them, from our perspective we wouldn't say they're all accelerators like Ignite. What is clear is that there are many ways now for startups to get going, and claiming a spot in a well-respected programme is a great head start.*

While there is an upside to this explosion – startups have a better chance to develop, and have greater exposure to investors – there are also some concerns.

First, the rapid increase of accelerators is being driven by the demand created from the high number of startups. However, while demand is strong, the supply of experienced mentors is relatively fixed. Therefore with each new accelerator the quality of mentor, and consequently startup, will be marginally lower.

The second concern is the quality of the business models adopted by accelerators; given the quality of Y Combinator's intake, mentors and investors, and the impressive track record of its alumnus, a 7% stake seems a very good deal. However many accelerators cannot boast Y Combinator's track record and while standards for equity stakes are around 6-10%,[30] opaque fee structures can make choosing the best option very challenging and reduce the competiveness of the market.

29 *Source: Tech.eu (2013) http://tech.eu/research/29/there-are-roughly-100-active-startup-accelerators-europe/*

30 *Source: NESTA (2011) The Startup Factories http://www.nesta.org.uk/publications/startup-factories*

The final concern is one for the accelerators themselves – the business model of accelerators is relatively unproven. Despite its successes, Y Combinator is an outlier, and given it has been around longer, it has seen some of its investments exit, realising its returns. Newer accelerators may be able to point to graduates who have received later stage funding, but this is no guarantee of exit and therefore gains are unrealised. Until that happens, the accelerators' survival as a business entity relies on fees. The situation for accelerators unable attract investors is worse still, as expressed by Robin Wauters of Tech.eu:

> *… an interesting observation is that startup accelerators admit that they often don't succeed in connecting their startups to bigger investors for follow-on funding – although this is often used as a carrot to get the best startups into the program.*
>
> *This could mean that the angel/VC community in Europe is simply not large enough, or not in tune with what happens in the accelerator space, or that the quality of startups simply isn't there (i.e. not high enough to warrant ongoing interest from institutional investors).*[31]

These concerns however, should not detract from the overall value of accelerators. Certainly consolidation will come, but as Y Combinator shows, a well-structured and well-supported programme benefits both entrepreneurs and the investment community. Accelerated businesses are more cohesive and prepared to work with investors as well as providing a powerful alumni network for new entrants.

'Institutionalised' Angels

While accelerator programmes have begun to institutionalise the process of business formation, a highly influential factor in recent years has been the institutionalisation of angel investment. Startup entrepreneurs have long relied on angel investors, both as a source of capital and vital experience, to help grow the company. Historically the ability to raise angel investment has required the entrepreneur to exploit personal and professional networks. As a consequence, angel investment has been fairly unstructured and dispersed. Where structure did exist, it was primarily in the form of closed angel networks who acted to source deals for the group consider and invest if they chose.

Such organisations are still very much in operation, however with the growth of social media and ubiquitous online networks, have come new platforms which enable existing angel investors to connect online. Platforms like AngelList, which replicate real world angel activities online, and augment them by allowing investors to organise syndicates, source deals and invest through the platform are an example of this trend. Unsurprisingly this makes the process for investors and entrepreneurs far easier than existing offline networks. Furthermore, this simplicity has seen an increase in the supply of both parties – more startups are created as more capital becomes more easily accessible, and more angels join as the supply of startups increases.

The same dynamic has come into force with the growing popularity of crowdfunding in its various forms.[32] Though it takes various forms, such as donation and prepurchase via Kickstarter or equity investment via Crowdcube and Seedrs, taken collectively the main benefits of crowdfunding have been similar to that of Angel List. These benefits include:

- Expansion of the angel investment market – Seedrs allows investors to put in as little as £10;
- Greater availability of capital for entrepreneurs who can attempt to raise as little or as much as they are able to; and
- Normalisation (or democratisation) of angel investment

Taken collectively, the introduction of these platforms mean that both startup and seed

31 *Source: Tech.eu (2013) http://tech.eu/features/804/eu-accelerators-research-seed-db-europe/*

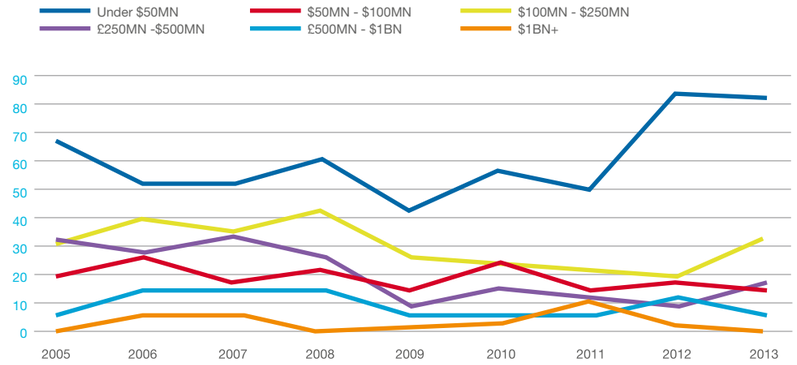
32 *For clarity, we will only deal with funding forms that are not debt-based.*

investments are becoming 'institutionalised'. It is now possible for a startup to raise every single dollar – from their very first up to IPO and beyond, through institutional methods. This fact has caused the VC industry to sit up and take notice; while these methods are unlikely to replace VCs, especially as a vehicle of business growth, they will inevitably cause changes to the way VCs do business. In the US, this has already begun to happen; industry commentators like Mark Suster[33] of Upfront Ventures, Scott Kupor[34] of Andreessen Horowitz and Manu Kumar[35] of K9 Ventures have all given their opinions on the factors driving this change, as well as the likely consequences in the years to come. In the following sections we will outline the areas they have identified.

Seed Burns Hot

As it has grown in prominence over the last decade, seed stage investment has increasingly attracted new investors, so much so that seed investment is now a hot place to be for VCs. As Suster, Kupor and Kumar all identify, the big news in the US has been VC fundraising directed at towards this sector of the market. Driven by the success and expansion of accelerators, combined with the creation of structure provided by network-based angel investment, seed has boomed. As Figure 12 demonstrates, sub-$50m fund-raising has been historically high, including 63 in the first half of 2014 alone while funds between $100m-$250m and $250m-$500m are on a noticeable downward trend. This is evidence of what Suster identifies as a "bifurcation" of the venture industry as VCs either move up into larger funds or focus down into smaller ones:

Figure 12 – Number of Successful Funds Raised



Source: Pitchbook 3Q 2014 U.S. Venture Industry Report

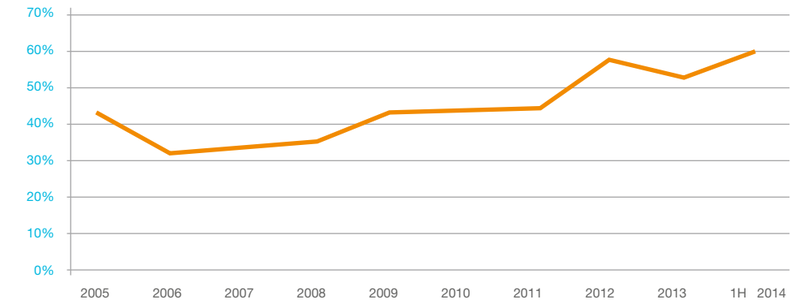
33 *Source: Mark Suster http://www.bothsidesofthetable.com/2014/07/22/the-changing-structure-of-the-vc-industry/*

34 *Source: Scott Kupor http://a16z.com/2014/07/25/why-the-structural-changes-to-the-vc-industry-matter/*

35 *Source: Manu Kumar http://www.k9ventures.com/blog/2014/04/10/new-venture-landscape/*

Expressing this fundraising as a percentage of overall funds raised demonstrates this effect even more starkly:

Figure 13 – Sub $50MN Funds as a Percentage of Funds Raised



Source: Pitchbook 3Q 2014 U.S. Venture Industry Report

This activity has created an environment where VCs feel compelled to get involved, either through direct investment or indirect investment into the accelerator market. Funds who play at the top end of the market (see next section) like Andreessen Horowitz and Greylock Partners, have carved out seed funds in an effort to stay involved in what has become a crucial area. The increase of funds at the top end actually has consequences at the seed stage as well. As Mark Suster[36] explains:

> *The more data I collected and the more conversation I had with GPs and LPs the more I realized that there was another major factor at play in the concentration of capital in larger funds – many traditional VC firms were now setting up "opportunity funds" or "growth funds." The data ends up looking skewed towards larger funds when it actually involves traditional VC funds now geared up to take capture more of the value in private funds before they went public. This is a structural shift in our industry few have talked about publicly.*

With this in mind, we now consider that there is a dizzying array of funding options at seed level: VCs, angels, 'online' angels, crowdfunding (non-equity), accelerators – all of whom are focused on sourcing the best deals.

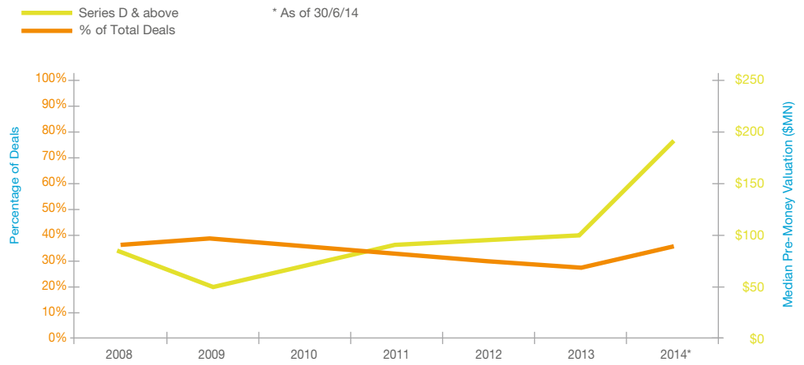
Not all of these factors are mirrored directly in the UK – recent positive increases in fundraising have yet to filter through, and the UK lacks the sheer number of funds at all levels. Yet the UK has benefited from the combination of financial innovations, such as equity crowdfunding, which have unleashed latent capital, and many points of government support which have encouraged this activity. Though the structuring is rather different, by building on the growth of seed detailed early in this report, the UK seed market is firing in a way not so different from the US.

36 *Source: Mark Suster (2014) http://www.bothsidesofthetable.com/2014/07/22/the-changing-structure-of-the-vc-industry/*

Bigger Later Stage Investments

Along with this increase of fundraising at seed stage, anecdotal evidence suggests there is a trend towards companies taking larger sized, late stage investment rounds. Looking at the data in Figure 14, there looks to be a dramatic increase in the median pre-money valuations of later stage investments. First consider later stage deals as a percentage of the total number of deals – despite a dip in recent years (as seed round deals took off) the proportion of later stage investments has been relatively static – between 30 and 40 per cent of all deals.

Figure 14 – Series D Deals - Values of deals vs Percentage of Total Deals



Source: Pitchbook 3Q 2014 U.S. Venture Industry Report

Yet looking at the changes in the median pre-money valuations of those deals, we can see an increasing trend towards increases of valuations at Series D, though it is yet to be seen whether figures for 2014 constitute a sharp escalation in values. We can at least be certain that this remarkable spike in valuations in the first half of 2014 is not from a small sample size, it is based on the 806[37] deals recorded to the end of June. In many cases this this is being led by non-traditional VC players diving into mature companies prior to Series D, a phenomenon noted by Pitchbook[38] that has consequences even earlier than Series D:

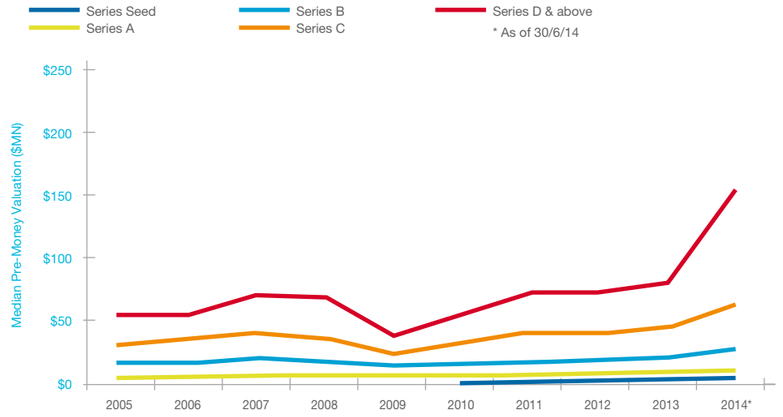
Two notable increases in median valuations were at the Series B and Series C stages, both of which have attracted more non-traditional VC interest from the likes of mutual funds, hedge funds and private equity firms looking to make pre-IPO investments.

37 *Worth noting is that Pitchbook records these as "Late Stage Deals", so this number includes Stage C deals as well, if these were removed the median valuation would be higher still.*

38 *Source: PitchBook 3Q 2014 U.S. Venture Industry Report*

So this phenomenon is not isolated to Series D, it is clearly reflected in the general upswing in values across the various stages of investment. If we include Series D valuations with the valuations at the other stages, we can see that the valuations at all stages are being pulled up:

Figure 15 – Median Pre-Money Valuations of US Venture-backed Companies



Source: Pitchbook 3Q 2014 U.S. Venture Industry Report

So we can see increasing levels of commitment at all stages, with the effect most pronounced at Series D and above. The most common explanation for this is that companies now wait longer to go public and, as noted by Mark Suster, consequently:

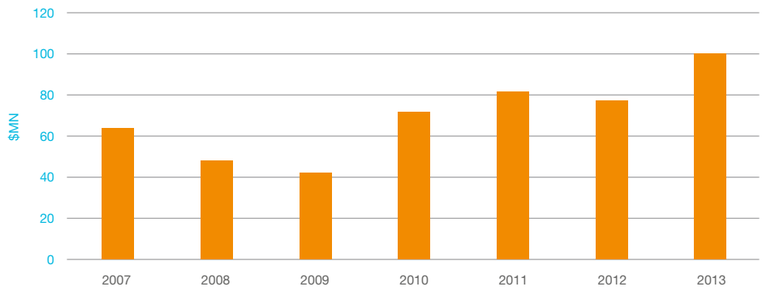
When you think about the trends of faster-growing startups due to social networking, credit card enabled and mobile first consumers – the reality is that many startups are becoming very large financially before needing to go public. In reality many of them could be profitable if they chose to.

But markets value high growth over short-term profitability. And as long as private-market capital is available these companies would rather remain private for longer before going public.[39]

39 *Source: Mark Suster (2014) http://www.bothsidesofthetable.com/2014/07/22/the-changing-structure-of-the-vc-industry/*

Suster then highlights that not only are companies staying private longer, but as Figure 16 demonstrates, they are also taking greater amounts of funding prior to IPO:

Figure 16 – Median Fundraising Prior to IPO



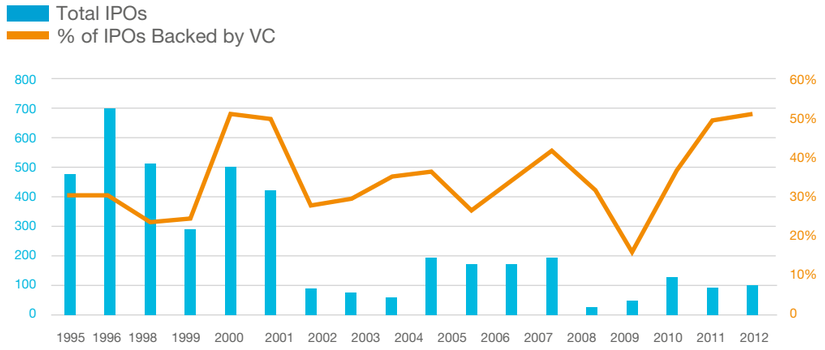
Source: EY (2014) Adapting and Evolving: Global Venture Capital Insights and Trends

In summary, compared to the period of the Dotcom Boom, startups are, on average, waiting twice as long to IPO, with triple the revenues. This has not been without consequences.

Public Markets Lose Out

Since the Dotcom Boom, we have seen a dramatic drop off in public offerings. Although the peak in IPOs occurred in 1996, that was something of an outlier. There was still sustained and consistent IPO activity through to 2000, understandably driven by the VC backed activity of the Tech Boom. Following the Crash the IPO market dropped away dramatically. As Figure 17 shows, the drop in VC backed IPOs was not the sole cause.

Figure 17 – IPOs in the US - Total vs % Backed By VC



Sources: Gao, Ritter, Zhu (2013) Where have all the IPOs gone?; Dow Jones Venture Source

It is difficult to assess the reason for the inability of the IPO market to bounce back. Venture capitalist Marc Andreessen of Andreessen Horowitz has commented extensively on the "death" of the IPO market, and has placed part of the blame on the challenges of running a public Tech company:[40]

> *... for young companies, everything is connected: stock price, employee morale, ability to recruit new employees, ability to retain employees, ability to sign customer contracts, ability to raise debt financing, ability to deal with regulators. Every single part of your business ends up being connected and it ends up being tied back to your stock price.*
>
> *The problem is when your stock price gets hammered by any of this stuff, when your stock price gets hit by a false rumour, that in itself can destabilize your company. These companies that go public too quick are at risk of going into a death spiral at any moment in a way that's super intense and very difficult to get out of it because it becomes self-reinforcing.*

Along with these challenges, Andreessen believes regulators should share some blame. Following the excesses of companies like Enron and Worldcom, Sarbaines Oxley regulations have made public listing much harder:

> *The compliance and reporting requirements are extremely burdensome for a small company. It requires fleets of lawyers and accountants who come in and do years of work. It's this idea that if you control everything down to the nth detail, nothing will go wrong. It's this bizarre, bureaucratic, top-down mentality that if only we could make everything predictable, then everything would be magic, everything would be wonderful.*
>
> *It has the opposite effect. It's biased enormously toward companies that are big enough to hire fleets of lawyers and accountants, biased against companies that are very young and for whom there's still a lot of variability.*

However other authors are not so sure; Gao, Ritter and Zhu find that rather than regulatory hurdles preventing companies going public, it is the greater propensity for trade sales driving the drop in IPOs.[41]

Whatever the causes though, it is quite clear the uplift in value is being captured by private investors, Andreessen explains the rationale:

> *This has had a big influence on how we set up our firm. We've set up our firm to basically not have to take companies public. We basically have a 15-year lockup on our money, which is longer than you used to do with private capital. One of the reasons why our funds are so much larger than venture capital funds used to be is because we have to have the firepower to finance companies through the point of time where we take them public.*[42]

As well as explaining where the value is gained, it gives a powerful insight into the growing influence of Tech founders who (famously in the case of Facebook and Google) retained over 50% of the shares in their companies. This also points to the rationale behind the evolution of the massive VC funds, who can now compete with mutual funds, private equity funds and other non-traditional funding sources to capture this late stage value.

40 *Source: Vox (2014) The IPO is dying. Marc Andreessen Explains Why. http://www.vox.com/2014/6/26/5837638/the-ipo-is-dying-marc-andreessen-explains-why*

41 *Source: Gao, Ritter, Zhu (2013) Where have all the IPOs gone?*

42 *Source: Vox (2014) The IPO is dying. Marc Andreessen Explains Why.*

FUTURE EVOLUTIONARY INFLUENCES

Predicting the future is a fool's game; but the venture capital industry is predicated on the need to form some sort of opinion on what the future may hold. This report will not seek to predict the future, but it will try and identify the environmental factors that could impact the way VC evolves in the medium term. Some of these factors will impact the UK sooner than others. In this chapter we will seek to understand these influencing factors before we address their impact on the UK in the final chapter.

Planet Tech

A persistent discussion in the Tech industry has been the one surrounding the search for the 'next' Silicon Valley, with the implicit understanding that the Valley holds all the advantages in Tech. The search itself is quixotic, but in recent years a more enlightened approach has emerged which involves taking the best learnings from Silicon Valley and applying them to local circumstances[43] – enabling regions to maximise local competitive advantages.

However the developments in Tech and investment since the Dotcom Boom may soon render this discussion irrelevant. Due to a combination of factors, we are now in a place that is less Silicon <insert geographic feature> more Planet Tech.[44] Planet Tech means that for entrepreneurs, locating within a particular business clusters will involve more choice and nuance. Tech startups can be founded anywhere and will require the mobility to locate anywhere. Tech companies will distribute themselves around the world depending on their circumstances and access to resources.

There are multiple factors behind this emergence:

Shared Influencer Base

Whether you're a Tech company in London, Tel Aviv, Hong Kong or San Francisco, you're likely to read the same blogs, media, follow the same Twitter profiles, read the same books and be influenced by thinkers such as Peter Thiel, Brad Feld,[45] Eric Ries,[46] Mark Zuckerberg and Marc Andreessen. This means that ideas and inspirations come from anywhere and are disseminated rapidly regardless of borders.

Seed Investors On Social Networks

The influence of social networks on all of us has been profound, for angel investors and people with disposable money alike. Platforms like Kickstarter and AngelList are inherently social, but whereas Facebook connects people without regard for geography, the new investment platforms are able to do the same with potential investors. For entrepreneurs, this means a globally distributed investor base can be just as connected as their local angel network, and finance can be allocated to anyone, anywhere.

Cloud-Based Infrastructure and Services

As discussed earlier, where once a Tech startup would deploy most of its funding to pay for hardware and infrastructure, today cloud-based infrastructure and services are prevalent. This not only results in a welcome drop in costs, it also enables businesses to work from wherever is convenient. Today's startups are not restricted to fixed infrastructure, and if their business is conducted online, they can service customers from anywhere.

43 Source: BVCA (2013) Tech Country. http://www.bvca.co.uk/ResearchPublications/ResearchReports/TechCountry.aspx

44 This is also possibly a more accurate title as most Tech businesses are software based, rather than the type of semiconductor-based hardware that originally prompted the name Silicon Valley.

45 Author of the Boulder Thesis which outlines the thinking behind what is required to build a functioning tech ecosystem.

46 Author of The Lean Startup, a highly influential book on developing effective processes for building a startup.

VCs OAP (On A Plane)

For VCs based in the UK, travel around the world to attend conferences, board meetings and to meet potential investments, comes with the territory. Many larger funds in the UK will happily make investments across Europe, Israel and the San Francisco Bay Area. This is not news. What is more interesting is that West Coast VCs are increasingly looking outwards to Europe, India and East Asia for investment opportunities. An excellent example of this are the investors from 500 Startups. This is accelerated by platforms like Angel List which see many GPs investing personal wealth, thereby getting an early sight of deals. Simply put, if you're a good business and have taken startup finance, your seed and growth finance could come from anywhere.

'Distributed' Clusters

The orthodoxy[47] of economic clustering states that clusters must share a geographic proximity. Yet in a policy report in 2013,[48] the BVCA noted that examples such as the Formula 1 cluster in the English Midlands (aka Motorsport Valley) can form without common geographic base. Such 'Distributed'[49] clusters instead rely on a highly competitive environment where meaningful interactions can take place. For Formula 1, this was the race track; although the teams bases were quite dispersed, they came together on race weekends where improvements and new ideas could be rapidly disseminated. For the Tech industry of 2014, those places of meaningful interaction are many and don't require a common geography: some are virtual like the App Store, blogs, the media, and online marketplaces; others are physical but temporary, like industry events, pitching contests, hackathons and international accelerator programs. Regardless of which way you look at it, shared geography, while helpful, is becoming less essential.

There are several consequences of this Planet Tech environment. As noted in the industry publication VentureBeat,[50] some entrepreneurs have already noted the state of play and view Silicon Valley as a location preferable for later rounds of investment. Looking at it this way, Silicon Valley becomes less a technology cluster, so much as a venture finance cluster. But a clear consequence of Planet Tech is that when we mix global ideas and capital, some interesting results present themselves. In the world of Planet Tech, the UK's local economic advantages can come in into play – language, labour costs, access to talent, government policy, liveability of a location, timezones, access to clients, customers and talent in the EU, and a range of other factors make it an attractive place to start a business, possibly more so that Silicon Valley.

Unfortunately we are not at the point where Planet Tech is a reality, the whole of the UK is not yet globally competitive. The ironic aspect of Planet Tech is that as some aspects become borderless, building upon local competitive advantages becomes more vital. Without a strong local offering of practical resources, Planet Tech remains out of reach. However if you take places which already have globally competitive resources (like London's local advantages in finance or the diversity of research in Cambridge), Planet Tech gets a lot more interesting and becomes more achievable.

47 Source: Porter (1990) The Competitive Advantage of Nations

48 Source: BVCA (2013) Tech Country.

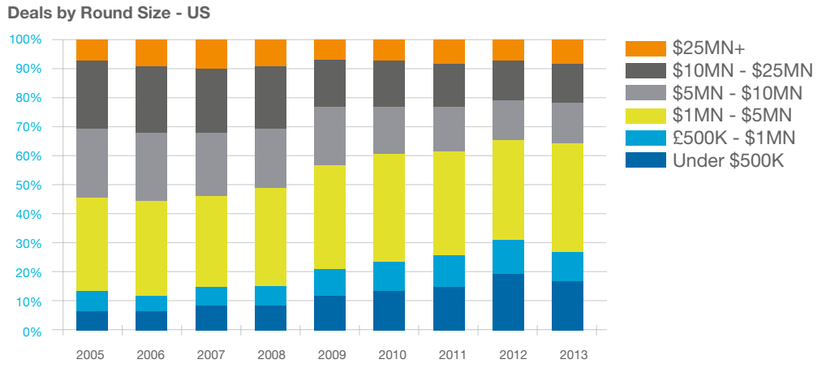
49 Source: Policy Exchange (2014) Silicon Cities.

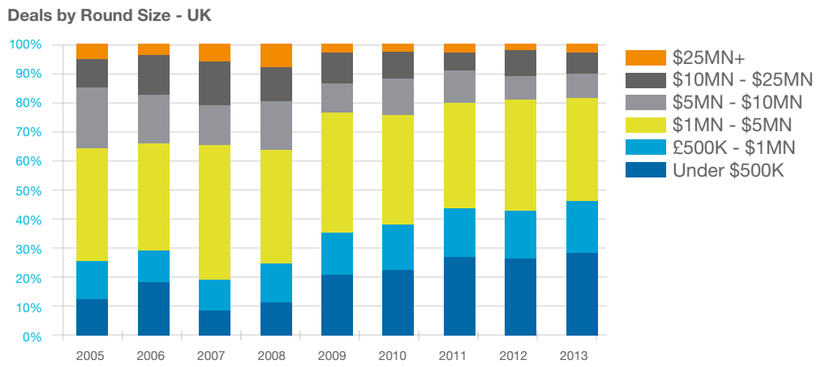
50 Source: http://venturebeat.com/2014/08/14/silicon-valley-has-evolved-its-not-about-startups-anymore/

Yet More Seed

The last few years have seen seed stage investment take a bigger and bigger role, with a greater number of deals made prior to what would typically be referred to as the traditional place for venture investment – Series A and beyond. As is evident in Figure 18, the trend towards a greater proportion of deals prior to Series A has been increasing for a decade – with the proportion of deals below $1mn virtually doubling and deals under $500k almost tripling in both the US and UK.

Figure 18 – US and UK Deals by Round Size





Source: Pitchbook

While the data at seed level can be a bit patchy, Figures 12 and 13 have illustrated a dramatic increase in fundraising in the US at seed level,[51] so investors appear to be supporting the growth in seed.

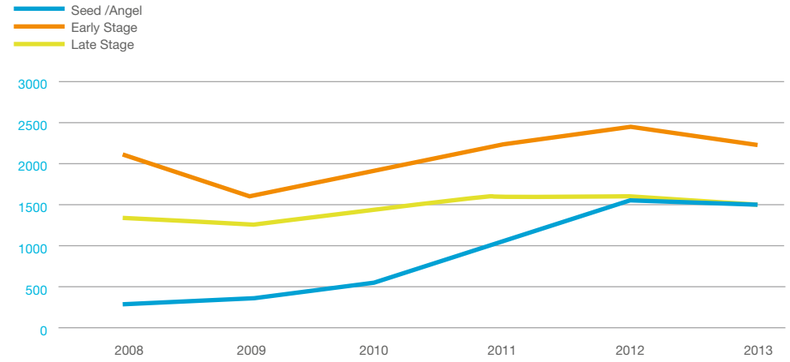
What is clear is that by examining the developments over the last decade at seed level, startups will increasingly choose to raise funds at this level, and as various alternatives to venture and traditional angel investment become more publically accepted, this will increase.

51 *Sample sizes for UK data make it impossible to conduct a reasonable analysis of this trend.*

Leapfrogging the "Crunch"

There is a question raised by this rapid increase of seed stage deals: If there is rapid increase of deals at seed stage, can we expect an investment "Crunch" at later stages? At the moment it is difficult to assess definitively. As Figure 19 shows, the number of deals at all stages in the US and UK is increasing, most notably at seed stage. However this is from a very low base, making assessment of a potential crunch highly problematic.

Figure 19 – Number of UK Deals by Stage



Source: Pitchbook

So if a crunch is difficult to identify, where are the seed stage businesses going if they are not failing? Here Tomasz Tunguz of Redpoint Ventures provides an analysis:

> *For the most attractive startups, seed rounds have replaced series As. Seed investment dollars have tripled in 4 years, driven mostly by VCs. When VCs participate in seed rounds, round sizes are on average 3x larger. VC seed round sizes have continued to grow by about 10% each year since 2010 and the number of MegaSeeds, i.e., those seeds greater than $2M, has grown by 5x in 3 years.*[52]

Tunguz points to the increasing nature of startups taking seed (in the case of the US, with larger fundraising), resolving their business model, growing rapidly and then going straight for expansion investment, typically at the Series B level.

52 *Source: Tomasz Tunguz http://tomtunguz.com/five-forces-shaping-fundraising-market/*

Professional Services with the Deal

Earlier in this report, we examined the phenomenon of the rapid growth of VC funds in excess of a billion dollars. The scale of these funds has not gone without notice, nor without criticism. The criticisms surrounding billion dollar funds are academic, but they also have very practical implications, albeit with caveats on their implications for UK VCs.

For the last decade there has been a growing body of academic research which contends that increasing fund sizes lead to lower than average returns. In various research papers during the mid-2000s, Josh Lerner noted that loss in performance (reduced IRR) can be correlated with both rapid increases in successive fund sizes, as well as a general tendency for a decline in performance once the size of the fund exceeds $500m.[53] More recent research by The Kauffman Foundation investigating the performance of its own indirect investment portfolio and found the same correlations; as they put it:

> *In our own portfolio, we found that we earned an investment multiple of two times our invested capital only from venture funds whose commitment size was less than $500 million; not a single fund that exceeded that capital raise earned more than twice the invested capital after fees.*[54]

Kauffman cite research by Kaplan and Schoar which appears to quantify this loss of performance, noting a drop of 1.5-2 per cent IRR for each 50 per cent increase in fund size.[55] Kauffman also take their research further and investigate the reasons for this drop in performance:

> *Today we see that enormous funds fail to generate excess returns, and fee-based economics misalign the interests between GPs and LPs, and create an environment for VCs to act like high-fee asset managers instead of nimble backers of high-risk, high-return entrepreneurial companies.*

Essentially the fee structure of 2 and 20, which is designed to incentivise positive risk-taking, can lead to issues past a certain point; the accusation being that harvesting the 2 per cent management fee becomes more attractive than chasing the 20 per cent carried interest.

Yet it is important not to rush to judgement about this research. All three papers are heavily focused on US VC data. As we have seen throughout this report, the fundraising environment in the US is fundamentally different to that in the UK – where VCs in the UK have struggled to raise funds, many VCs in the US have not. Indeed the Kauffman research laments the role of LPs in creating and perpetuating this problem through the continued practice of employing fixed allocations to venture investment, and the lack of willingness to challenge the 2 and 20 model mode, regardless of the amount of supply in the market. This has led to an overabundance of capital and has enabled some VCs to raise new funds despite lack of performance in their earlier efforts.[56]

As this report has detailed, the situation in Europe is substantially different, though there are some firms who have raised funds well in excess of $500m. Rather than an excess supply of capital, though, this fundraising has been achieved on the back of the outsized performance of their previous funds. In the restricted fundraising environment found in Europe, this is the only way such fundraising is possible. The problems suggested by Kauffman and others, do not seem present in the UK. But a degree of vigilance from UK VCs is vital. If venture in the UK continues its return to prominence and LPs return to the market, it is in the interests of all VCs to

53 *Source: Lerner and Schoar (2005) Smart Institutions, Foolish Choices?: The Limited Partner Performance Puzzle, 2005. http://www.mit.edu/~aschoar/SmartInstitutions.pdf.*

54 *Source: Mulcahy, Weeks and Bradley (2012) We Have Met The Enemy... And He Is Us. Kauffman Foundation. http://www.kauffman.org/what-we-do/research/2012/05/we-have-met-the-enemy-and-he-is-us*

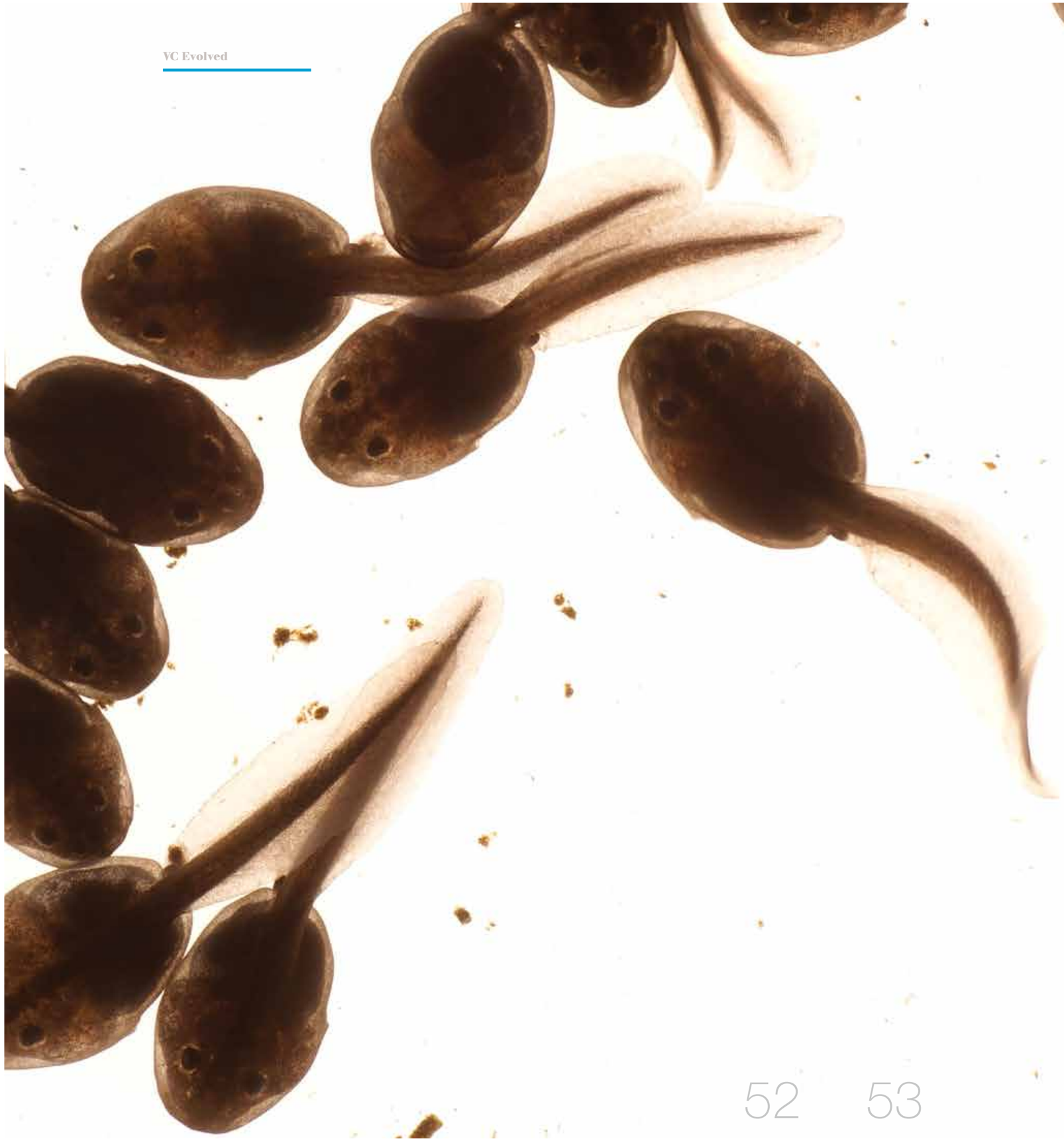
55 *Source: Kaplan and Schoar (2005) Private Equity Performance: Returns, Persistence, and Capital Flows. http://www.mit.edu/~aschoar/KaplanSchoar2005.pdf.*

56 *It has also led to US LPs investing further afield in Europe in search of stronger returns.*

ensure the market remains competitive. Therefore, this report believes it is important to consider some of the ways that funds in the US have sought to mitigate the potential for conflicts of interest as Marc Andreessen identified in his interview with Vox, larger fund sizes are becoming increasingly necessary to capture value and help grow businesses in the face of difficult markets.

So the question is now: how do you avoid reductions in performance as fund sizes grow? Some firms looking to solve this dilemma have developed a solution that has the potential to kill two birds with one stone. For example, some firms, like Andreessen Horowitz, have chosen to supply business services capabilities to their portfolio companies. This in itself is not a new development. Indeed, in some earlier forms it is seen as sharp practice by many – the differences in this case, are the key. Firstly the business services supplied are not basic ones such as marketing or accounting, which should be for the portfolio company to retain. Instead the services retained are ones which provide highly specific industry knowledge and insights, and are intended to help startups to scale. To this end, Andreessen Horowitz retains an extensive team of advisors in areas from Corporate Development to Operations who are available to any portfolio company who needs their expertise. The second, and most crucial difference is that these services are paid for out of the VCs own management fees, thereby reducing the incentive to harvest fees, and removing the load from portfolio companies while simultaneously providing an increased likelihood of success. It is a sign that VCs themselves understand the implications of the perverse incentive of management fees and are attempting to instil fiscal discipline in their own organisations while providing a more comprehensive offering.

As more VC firms start to raise even larger funds, expect the “VC/Managed Services Firm” structure to become more widespread, and perhaps, as venture in the UK recovers, this model will be deployed by UK firms.



UK VC – ADAPTING TO CHANGE

Having considered the nature of the evolution affecting the industry, the forces driving this change, how the industry stands and some influential trends for the future, it is important to consider how this may play out in the UK and how local VCs can adapt to these changes to enhance their competitive position. Naturally some elements will impact more directly than others. For example, even by the most optimistic forecasts it will be a number of years before European VCs are regularly raising funds in excess of a billion dollars, yet the increasing likelihood of US-based VCs investing in the UK does deliver an impact. With this in mind, the following presents a range of areas that will have the most impact on VCs in the UK, as well as recommendations of how the industry can respond.

Early Stage Advantages

For the UK, one of the most interesting aspects of the decentralised forces driving Planet Tech, is its duality. On the one hand reducing the importance of location for entrepreneurs and startups seeking to fundraise and test ideas, but on the other, the continued importance of location of as a source of competitive advantages. Because of the diversity of possibilities, making definitive claims one way or the other can be challenging.

However when we consider four key aspects – new sources of investment, labour costs, access to talent and government policy – there are definite reasons to believe that the UK can be particularly attractive to early-stage startups:

New Sources of Investment

One of the historic challenges for startup entrepreneurs in the UK has been access to knowledge as much as capital. Yet the changes in culture and in financing platforms discussed earlier mean that startups in the UK today are beginning to be exposed to the sort of skilled investment that has traditionally underpinned the development of Silicon Valley's startups. We have already examined the way new capital can be sourced from anywhere, we have also looked at the way there has been a cultural change that means experienced entrepreneurs are looking for ways to remain connected with the UK's startup communities. The upshot of this is that in the UK, for early stage businesses, there is now a powerful combination of experienced and smart investors available to be tapped for funding. Importantly these investors innately understand the opportunities of Planet Tech and are highly mobile, both within Europe and across the world. These investors can be sourced in a variety of ways – through platforms like AngelList, through the accelerators, within the community, and even VCs investing for themselves on the side.

Labour Costs

As discussed, startups in Silicon Valley are raising ever higher seed investment rounds, despite the precipitous drop in overheads for business infrastructure and services in the last 10 years. This has been driven in large part by a spiralling of labour costs for key startup talent. For the UK this is an opportunity. While it is difficult to definitively state the difference[57] in labour costs for UK startups as compared to those based in Silicon Valley, anecdotal evidence suggests that startups which don't require high levels of technical capability are able to run more efficiently at seed stage when labour costs are considered. This efficiency aspect has been noted by VC investors for a recent article in TechCrunch:

> *European companies raise smaller rounds at each stage versus their U.S. counterparts and make that funding last as much as eight months longer before securing the next one.*[58]

57 *A survey currently in the field, conducted by the European arm of the popular tech blog TechCrunch, should shed some light on this situation.*

58 *Hernandez & Piron (2014) The State Of Investments In Europe: A Review Of The Last 5 Years. TechCrunch. http://techcrunch.com/2014/09/20/the-state-of-investments-in-europe-a-review-of-the-last-5-years*

Access to Talent

At first it may seem counterintuitive that the UK startup ecosystem might hold an advantage in terms of access to talent – virtually every report produced about the UK technology sector in the last five years has focused on the importance of access to talent:

> *The single most important factor for Tech clusters' success is having access to a large pool of talent. To survive and thrive, UK Tech clusters must be able to compete for talent internationally.*[59]

The UK suffers from shortages, which have consequence, but in this aspect it has some good company:

> *It's no secret that a digital skills gap exists in the UK. A study carried out on behalf of O2 towards the end of 2013 found that Britain will need 750,000 skilled digital workers by 2017 – and if we can't support that growth, it could result in costing the UK as much as £2bn each year.*
>
> *However, I don't think the UK is particularly unique in this situation. The skills gap here is no bigger than in the US for example.*[60]

So the UK has a problem of skills shortages, yet this is something that faces every single technology hub that grows at such a pace. So where is the advantage for the UK? The first is political – the UK's relationship with the EU provides an ability to draw in foreign talent with an ease that Silicon Valley can only dream about. For early stage businesses, the challenge of dealing with sponsorship visas is a headache and an overhead that can be crippling. Membership of the EU provides startups in the UK access to a talent pool far larger than that of the US. The free movement of people enables supply of talent to quickly and flexibly meet demand, even when it is only temporary.

The second advantage in the fight for talent is provided by geography and is one that UK business have long realised. By quirk of history and geography, the UK timezone is perfectly positioned to manage distributed operational groups across the world. Startups in London can work efficiently with partners in East Asia at the start of the business day, work with hubs of key development talent in India and Eastern Europe as well as have contact with potential investors on America's West Coast as the day progresses.

None of these points are to say that the UK does not desperately need simplified visa processes or effective talent pipelines from its educational institutions – these problems have been identified by virtually every study since 2010 (including reports by the BVCA), however VCs will no doubt realise that the UK is advantageously placed to work around such issues in the short term.

59 *Source: Policy Exchange (2014). Silicon Cities.*

60 *Source: Matt Cynamon quoted in Tech Radar (2014) http://www.techradar.com/news/world-of-tech/management/the-reality-of-the-digital-skills-gap-1234023*

Government Policy

It is fair to say that Tech entrepreneurship is favoured by the UK Government. Since the Coalition Government took an active interest in Tech via its endorsement of Tech City in East London in 2010, a steady stream of entrepreneur and investor-friendly policies have flowed from Westminster. Government announcements on areas like early stage seed investment, a commitment to open data, corporate tax rates and overall tax simplification were augmented by business-friendly regulatory support of innovative areas of finance and technology. All of these initiatives built upon an already favourable set of incentive programmes[61] formed by governments on both sides of politics to create what has become, immigration aside, an extraordinarily pro-business climate both in action and spirit.

Taken in their entirety, this range of Government policies and actions make the UK particularly attractive for entrepreneurs and investors, particularly at seed stage.

Regulatory Systems

In the last few years, the UK (and especially London) has become a breakout area of innovation in finance. In a range of different areas, startups have been encouraged to take aim at incumbents in an attempt to shake up the system. Examples like TransferWise in forex, Nutmeg in personal wealth management, Crowdcube and Seedrs in equity crowdfunding, and Zopa and Funding Circle in debt crowdfunding are just a few of the companies who have pursued innovative businesses with the encouragement of a benevolent approach to regulation. Indeed the current government has begun making positive noises about innovations such as Bitcoin,[62] sitting at the very edge of financial innovation. The government's regulatory approach to finance is indicative of its desire to push innovation, business and trade in an effort to encourage economic growth. The only discordant note is the self-defeating approach to immigration. For VCs this provides an opportunity to invest in areas incentivised by government activity; it also signals that government will carefully consider proposals about how to gain competitive advantage in new areas of opportunity.

The objective for VCs then is to identify opportunities that may be further enhanced by aspects of policy involvement and work with the BVCA to develop effective cases for government involvement (or otherwise).

Geography

Businesses of all kinds have long recognised the value of Britain's geography, our proximity to Europe, language, our central location within the world's timezones, and our historic connections to centres of trade and innovation are unmatched. The venture industry is no different in recognising this value but the greatest opportunities will only continue to develop; as capital, labour and innovation become more globalised, the UK will become a gateway to these opportunities in the same way it has long been a gateway for global finance. The opportunity for VCs in the UK is to not only source deals on their own, but to become the syndicate partners of choice for a range of globally dispersed businesses.

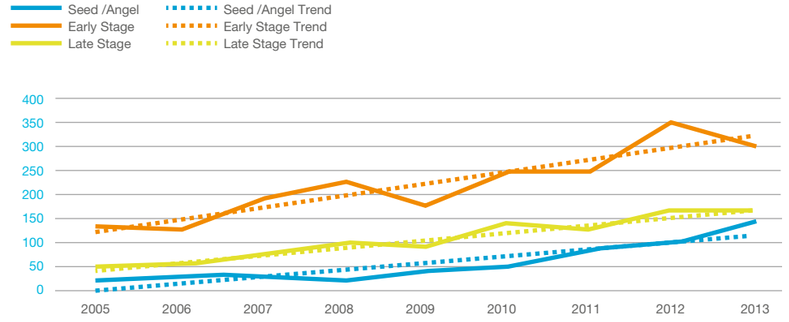
61 *See Appendix 1*

62 *Source: http://www.bbc.co.uk/news/uk-28670414*

Late Stage Challenges

That seed stage finance is so active right now is extremely encouraging news. Yet it is not without consequences. In the UK especially, the Tech industry now finds itself amidst a "crunch" (shortage of available capital) at the B-Round of investment – some businesses will find the funding they seek, but others will not. As Figure 20 shows, although there has been substantial increases in dealflow in seed rounds and early stage, this has yet to transfer up the chain towards later stage investments:

Figure 20 – UK Deals by Stage - Including Trend Lines



Source: Pitchbook

The concern is that the success of efforts to bolster seed stage investments will create a cohort of businesses which are unable to secure later stage funding and either fail, or are forced to move elsewhere to grow.

There are some mitigating factors here, and they are mostly ones of timing. Firstly, SEIS financing has only been in existence since 2012 and it is natural that it will take time for entrepreneurs and investors to take advantage of its benefits. Secondly, while there is a great deal of positivity amongst the UK's Tech community at the moment, it is an extremely recent phenomenon and fundraising activities lag behind this sentiment. However, despite these mitigating factors and the positive feeling within the industry, it is impossible to avoid the fact that in the UK the industry continues to be weighed down by poor sentiment and structural funding gaps amongst LPs. A potential solution to this challenge lies with creating a closer connection to Corporate VCs as suggested by the BVCA in a recent report on the topic.[63]

63 *Source: BVCA (2013) The Missing Piece. http://www.bvca.co.uk/researchpublications/researchreports/themissingpiece.aspx*

Building Future Talent Pipeline

It is impossible to write anything about Tech in the UK without acknowledging the long-term challenges faced by the UK in talent acquisition. Although the UK has benefited from its geographic placement, linguistic dominance and EU membership, it is impossible to ignore its severe skills shortages. Baroness Lane Fox has identified a gap of 1 million jobs in the Tech industry by 2020.[64] This is not a problem that is unique to the UK; Silicon Valley faces similar pressures. In numerous reports the BVCA has advocated for increasing the skills base through various policy means, and this effort continues. In the case of skills shortages, there are several opportunities for the VC industry to take an active role well. The following are areas ripe for VCs to help make an impact:

Building the Right Approach to Inclusiveness

It scarcely needs explaining, but in a world where the UK Tech industry faces massive shortages, every effort should be made to remove blockages and encourage anyone with the desire to get involved. In her recent speech to the House of Lords, Baroness Lane-Fox identified one such challenge:

> *More depressingly, the number of women in the UK Tech sector is actually falling as an overall percentage. If current trends are not reversed, only 1% of the sector will be female by 2040.*

This is just one parameter of the discussion around diversity. The position of this report is that the debate should not be ideological, rather it should be viewed as sound business – greater inclusiveness increases the employment base and enhances the gains that diversity brings to businesses reliant on creativity and innovation. The Tech industry and with it the venture capital industry will benefit when employment opportunities are open to all, irrespective of sex, race, religion or sexual preference.

The response from the VC industry must be comprehensive in its scope, as investments in founders based on factors other than business fundamentals can lead to results which may undermine efforts for greater inclusiveness. In a recent paper into determinants of VC success published by BVCA, researchers found that experience was the greatest indicator of success but it also found potential links between investments into female founders (and founders with a PhD) and a lower likelihood of positive outcomes:

> *Founders with a PhD or an MD degree are associated with lower European success rates, especially in Europe. Female founders are also associated with significantly lower success rates. This is consistent with venture capitalists being more willing to finance marginal ventures backed by highly educated or female founders than other founders. Founder experience is significantly more strongly associated with success in Europe than in the US.*[65]

To be clear, this research does not say that female founders are not capable of building successful companies; rather it is a caution to investors to invest in companies with experienced founders. Therefore the focus should be help build the experience base in the Tech industry that underpins diversity. In this we see a crucial role for VCs. Given their ability to look across a range of businesses and industries, and in their role as advisors, VCs can be advocates for change within their portfolios. VCs should work closely with the companies to develop talent through leadership of their portfolio companies and mentorship in the business community.

64 *Source: Lane-Fox (2014) Hansard, col. 395. www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140116-0002.htm#st_128*

65 *Source: Axelson and Martinovic (2013) European Venture Capital: Myths and Facts. BVCA*

Skills and Training

A consequence of the previous point is the need for a focus on skills and training. In this area there are many of policy reports[66] calling for government involvement:

> *In September 2014, the UK will become the first G20 economy to implement mandatory computing lessons for 5–16 year olds on a national level. A major component part of the course will involve learning how to code. This development should be universally welcomed: it is the only long-term answer to addressing the UK's need for technology skills. The timetable for implementing the new curriculum is ambitious, especially given that many of the 50,000 teachers that will be needed to deliver the course will have no background in computing. Industry is ready and willing to help; government can assist by funding initiatives that help bring them together with schools that need support.*[67]

However it would be a wasted an opportunity for the UK's venture industry to rely solely on government intervention. To fully capitalise, the venture industry should act upon its own initiative push for improvements at a firm level. Again, as with issues around diversity this is based on sound business logic. The venture industry is rightly proud of its focus on building the businesses of the future through equity investment and growth focused insight. However there's more that can be done by all VCs to both encourage portfolio companies to adopt policies that invest in the skills and training of staff as well as encouraging community engagement with the same ends. For VCs there are now a wide range of organisations across the UK, government, private sector and not-for profit which would welcome the involvement of VCs in support of their efforts. At the end of this report, in Appendix 2, is a list of a range of organisations across the UK which would welcome the support of the industry either as individuals or firms, we encourage members of the BVCA and others to act in support of their aims.

66 *Source: Coadec (2014) The Startup Manifesto. http://www.coadec.com/wp-content/uploads/2014/09/Startup-Manifesto.pdf*

67 *Source: Policy Exchange (2014) Technology Manifesto. www.policyexchange.org.uk/publications/category/item/technologymanifesto*

CONCLUSIONS

It is important to bear in mind that this is not a policy report. The BVCA and a number of other policy organisations have outlined what government can do to help tackle the challenges of the future. Instead this report is a challenge to the UK VC community. Over the last 15 years, the community has been forced to deal with rapid and almost overwhelming change. The landscape for investing and fundraising has changed considerably and the environment is a much harder place to do business. But today we see a resurgences in VC on the back of the innovative businesses they have backed. VCs today, whether they are becoming more focused on early stage or are expanding their growth potential, are in a strong position to benefit from a new environment. They have proven that it is not impossible and there are actions that VCs can undertake to improve their chances of managing the uncertainties of the future.

After all, as Darwin never actually said:

It is not the strongest of the species that survives, nor the most intelligent. It is the one most adaptable to change.

APPENDIX 1

Table of Government support initiatives reproduced with the permission of Policy Exchange.

Figure 21 – Table of Government Support Programmes

Date	Name	Description
For investors, venture capitalists and business angels		
1994	**Enterprise Investment Scheme**	Income Tax and Capital Gains Tax (CGT) incentive for investors that purchase share options in SMEs, up to a value of £1m p/a
1995	**Venture Capital Trusts**	Income Tax and CGT incentive for investors in Venture Capital Trust schemes purchasing shares in SMEs, up to a value of £200,000 p/a
2012	**Seed Enterprise Investment Scheme**	Income Tax and CGT incentive for angel investors that purchase share options in small firms, up to a value of £100,000 p/a
For companies seeking investment and mentorship		
2006	**Enterprise Capital Funds**	12 commercial funds backed by government, 11 of which are based in London / South East
2008	**Enterprise Finance Guarantee**	Encourages banks to extend credit to riskier small companies by providing a Government guarantee against 75% of the value of the loan
2009	**UK Innovation Investment Fund**	£325m in two venture capital funds of funds that invest in technology businesses within strategically important sectors
2011	**Business Angel Co-investment Fund**	£50m equity investment fund backed by government with a focus on certain regions
2012	**Business Bank**	The Business Bank will bring together existing Government SME finance support schemes and manage new funds to improve the UK's business finance markets
2012	**Startup Loans Company**	Provides small loans and mentorship to new entrepreneurs and startup companies
2012	**Growth Accelerator**	A consultancy scheme backed by Government providing business advice to small, high-growth firms
2013	**New Enterprise Allowance**	Provides welfare claimants with a loan and mentorship when starting a new business
2013	**Launchpad Funding**	Run by the Technology Strategy Board, Launchpads are small funding competitions for innovative companies to develop specialist projects, targeted at firms within certain tech clusters
2013	**High-growth Segment (HGS) on London Stock Exchange**	A new growth market for high-growth companies wanting to raise capital through the sale of a small percentage of shares
2014	**Stamp Duty Exemption on LSE Growth Markets**	For both AIM and the HGS on the London Stock Exchange, purchased shares will be exempt from Stamp Duty liability

For innovative businesses and entrepreneurs

2000	**Enterprise Management Incentives**	Income Tax and NIC incentives for employees of small firms who purchase share option in their company
2000	**Research and Development Relief**	Corporation Tax incentive for SMEs and large firms that invest in qualifying R&D activities
2008	**Entrepreneurs' Relief**	Entrepreneurs benefit from reduced rate of 10% Capital Gains Tax on any value (up to a maximum of £10m) realised upon the disposal of business assets or shares
2009	**Small Business Research Initiative**	Expanded in 2013, SBRI provides 100% R&D funding to companies seeking to develop innovative products not offered by the market for the public sector
2011	**Government Procurement IT**	Target to achieve 25% of total IT procurement from SME suppliers and introduction of the G-Cloud portal, with a further target of 50% of all new IT spending awarded to SMEs through the supply chain
2013	**Patent Box**	Allows companies to apply a lower rate of 10% Corporation Tax on revenues earned though their patented inventions and innovations
2014	**Games Tax Relief**	Tax credit payable to games developers based on production cost of qualifying games

For a connected and supportive ecosystem

2010	**Tech City UK**	A publically funded body created to represent the tech community within Westminster and encourage growth of technology clusters around the UK
2013	**Catapult Centres**	A network of technology transfer centres with the purpose of connecting businesses with academics to commercialise innovative products and services in valuable technological markets
2013	**Information Economy Strategy**	Strategic plan from Government for the technology industry to develop support and stimulate investment. The Information Economy Council meets to discuss progress and issues against the strategy
2013	**Future Fifty**	A scheme for fifty of the UK's highest growth digital companies to access fast-tracked regulatory and business advice from Government

For provision of digital connectivity

2010	**Rural Broadband Programme**	Broadband Delivery UK, part of DCMS, has funded 44 locally led broadband connectivity projects, designed to rollout superfast broadband in rural areas typically underserved by commercial providers
2012	**Super Connected Cities**	22 Super Connected Cities received investment from the Urban Broadband Fund to deliver superfast broadband infrastructure and Connection Vouchers
2014	**Connection Vouchers**	A credit from Government for small businesses to upgrade to superfast broadband

For nurturing domestic digital skills and attracting tech talent from abroad

2003	**Global Entrepreneur Programme**	Targets overseas entrepreneurs and startups with assistance to relocate their businesses to the UK
2011	**Entrepreneur Visa**	Tier 1 Visa for foreign nationals securing investment to start a business in the UK
2011	**Investor Visa**	Tier 1 Visa for foreign nationals willing to invest £1million in UK businesses
2013	**Graduate Entrepreneur Visa**	Tier 1 Visa for international students looking to take forward (viable) business ideas
2014	**Exceptional Talent Visa**	Tier 1 Visa route for talented foreign technologists to work in a UK technology firm
2014	**Sirius Programme**	A competition for foreign graduates with tech talent to win a place at a UK accelerator and receive financial and business support
2014	**Computing Curriculum**	Introduction of Computing into the curriculum for 5-16 year olds, including coding and understanding how computers work

For regional economic growth

2010	**Regional Growth Fund**	£3.2billion economic development fund that support private and public sector projects in targeted geographical areas
2010	**Local Enterprise Partnerships (LEPs)**	Working across the private and public sector 39 LEPs have a responsibility to achieve local economic growth through development of strategies and rollout of investment plans
2011	**Enterprise Zones**	24 LEPs awarded an Enterprise Zone where companies are offered relief from business rates, relaxed planning regulation and business ready connectivity.
2011	**Growing Places Fund**	£730m infrastructure and housing fund provided to LEPs
2012	**City Deals**	28 cities have agreed devolved financial, planning and skills powers in return for a greater responsibility in achieving local economic growth
2014	**Growth Deals**	A Growth Deal was agreed with each LEP in July 2014, competitively allocating £6billion drawn from the Local Growth Fund and the European Structural and Investment Fund. The deals will prioritise spending on new infrastructure and projects to create jobs and build new homes.

APPENDIX 2

Tech Skills and Training Organisations

There are many commercial and non-commercial organisations working every day to support digital skills development. Many need support, sponsorship and advice. The following are just a handful of organisations such as these:

Code Club

Code Club is a nationwide network of free volunteer-led after-school coding clubs for children aged 9-11. We create projects for our volunteers to teach at after school coding clubs or at non-school venues such as libraries. The projects we make teach children how to program by showing them how to make computer games, animations and websites. Our volunteers go to their local club for an hour a week and teach one project a week.

https://www.codeclub.org.uk/

Next Gen.skills

The campaign believes that for Computing and Computer Science subjects to be taught creatively, i.e. with reference to Art, Design and the humanities – they need to be based on ‘STEAM’ not just ‘STEM’. Next Gen Skills is also working with partners to make these changes a reality on the ground by supporting schools across the country to make ‘digital making’ and creative programming truly mainstream and, most importantly, fun.

http://www.nextgenskills.com

Apps for Good

Apps for Good’s goal is to transform the way technology is taught in schools; to empower students from all backgrounds to seize the opportunities of the digital age and create solutions to the problems they care about, using technology

http://www.appsforgood.org

Young Re-Wired State

Young Rewired State is an independent global network of kids aged 18 and under who have taught themselves to program computers. We introduce these children to like-minded peers at events around the world where they use freely available open data to make websites, apps and algorithms to solve real world challenges .

https://youngrewiredstate.org/

Coding for kids

This group was created by a community of people made up of young people, teachers, ex-teachers, developers, parents and industry with the purpose of finding ways to support education of programming and computational thinking for the current and next generations in the UK. *http://codingforkids.org/wiki/Main_Page*

Make things do stuff

Make Things Do Stuff is a campaign and website designed to mobilise the next generation of digital makers.

http://makethingsdostuff.co.uk

Click it kids

ICT is now part of the Early Years Foundation Stage Curriculum for all 3-5 year olds. Learning IT skills with us will give them an excellent head start when they leave nursery school to go to Primary School and help to increase their concentration skills and general all round confidence.

http://www.clickit-kids.co.uk

Digital Skills Academy

The mission of the Digital Skills Academy (DSA) is to offer people a digital literacy programme to enable them acquire digital competences to improve their work search process and to assist them to become more job ready

http://www.digitalskillsacademy.org.uk

Code Club for Girls

Computer Clubs for Girls (CC4G) is an out-of-the-box after-school club that has been specifically designed to encourage girls to stay engaged in IT. It helps girls develop their skills in IT through a series of carefully-graded challenges, themed around their interests – like fashion, music, sport and celebrity. Running CC4G doesn’t need any specialist IT expertise or software, it’s fully curriculum-compliant, and girls love it.

http://www.cc4g.net/

Little Miss Geek

Little Miss Geek is inspiring the next generation of young girls to change the world through technology.

http://littlemissgeek.com

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