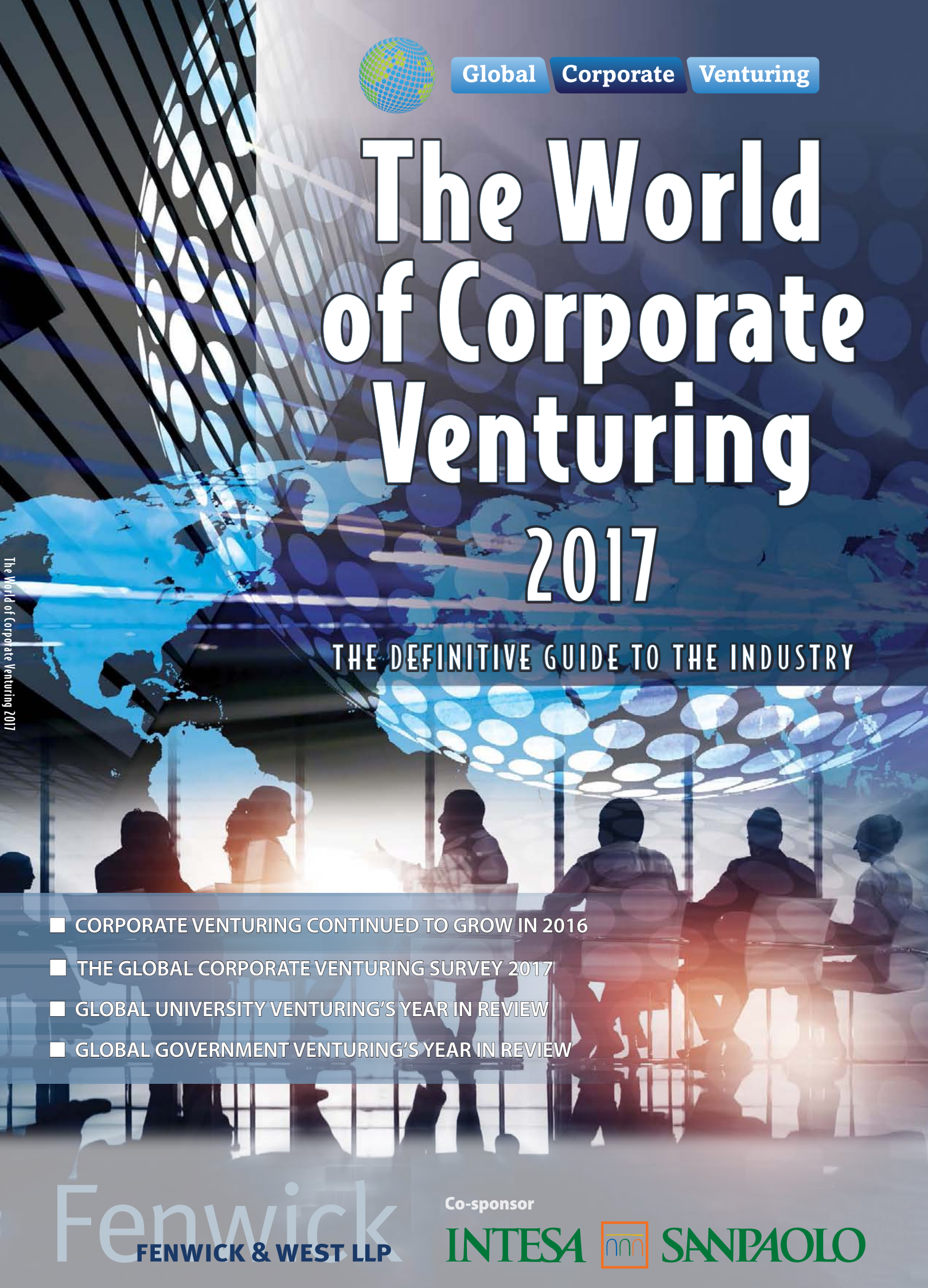

Global Corporate Venturing

The World of Corporate Venturing 2017

THE DEFINITIVE GUIDE TO THE INDUSTRY

The World of Corporate Venturing 2017

- CORPORATE VENTURING CONTINUED TO GROW IN 2016
- THE GLOBAL CORPORATE VENTURING SURVEY 2017
- GLOBAL UNIVERSITY VENTURING'S YEAR IN REVIEW
- GLOBAL GOVERNMENT VENTURING'S YEAR IN REVIEW

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VENTURE SANDS SHIFT WITH TIME

James Mawson, editor-in-chief

The most dangerous phrases in finance are "this time it is different" and "paradigm shift".

Finance is as cyclical as the society it reflects. A series of seemingly endless booms and busts as trends and ideas come into and out of fashion and interest rates rise and fall and money supply increases, whether directly, through credit or other ways, such as derivatives. And it is hard not to look at commitments made to a close a $100bn venture fund organised by Japan-based conglomerate SoftBank with an expectation that last year was a high point in private capital markets and innovation capital.

For context, the entire venture capital-backed deal market last year was worth an aggregate $134bn across 9,717 deals globally, according to data provider Preqin. It was the second, successive year of $100bn in deal value, Preqin said, reaching a high watermark last seen in the dot.com bubble year at the begining of the millennium.

Corporations were an important part of the increased value of deals, even if they made up a fifth of overall venture investment volume. Last year, GCV Analytics tracked 1,952 corporate-backed venture rounds worth $83bn. This was about double the value of corporate investments compared to 2014's $42.95bn, although deal volumes only increased by less than a third from 1,590 two years ago.

But SoftBank's fund, reportedly oversubscribed in months, might not be the signal of 'peak venture' that it first appears for two reasons that became clearer over the past year – supply of capital is changing from purely financial-focused principals to those with often more strategic reasons and opportunities to invest.

Capital supply

Looking deeper at the SoftBank fund, the disclosed sources of capital are corporate, government and individual rather than institutional investors, such as life assurers, looking for a financial return.

SoftBank has said it is investing at least $25bn in the fund and has been in talks with Saudi Arabia's state-backed Public Investment Fund for another $45bn commitment. SoftBank said the remaining money was being committed by others, including US-listed technology firm Apple, Taiwan-based manufacturer Foxconn, database provider Oracle founder Larry Ellison's family office and chipmaker Qualcomm.

"We believe their new fund will speed the development of technologies which may be strategically important to Apple," company spokesperson Josh Rosenstock told newswire Reuters, confirming in January its plan to invest $1bn in the SoftBank Vision fund. Given Apple had $237.6bn in cash in its fiscal fourth quarter, finding uses for this mountain of cash that could provide financial returns and strategic insights seems reasonable.

Saudi Arabia seems to agree, probably for similar reasons – the SoftBank fund and technology offers it potential financial returns for its oil-derived wealth and a chance for the kingdom to find the new ideas and technologies that could help its population.

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Almost every other leading company, university and country is thinking along similar lines.

Over the past 12 months, Global University Venturing has tracked more than 50 new funds, including $650m for Oxford Sciences Innovation, MIT's $150m Engine initiative to provide long-term patient capital and workspace to fledgling spinouts, and the sweeping $7.6bn plan unveiled by Tsinghua University in June.

Over the past 12 months, Global Government Venturing has recorded more than 200 funds, including the EU's $1.7bn VC fund *(see our Global University Venturing and Global Government Venturing reviews of 2016 at the back of this publication)*.

Carlos Moedas, European Commissioner for research, science and innovation, delivered the 2016 Guglielmo Marconi Lecture last month and laid out his vision of the European Innovation Council and a fund of venture capital funds as key elements in helping member states through "open innovation, open science and [being] open to the world".

Hiro Mizuno, chief investment officer at Japan's $1.4 trillion Government Pension Investment Fund (GPIF), in a speech at the Coller Institute of Venture at the end of November said he was "really keen promote science and small business".

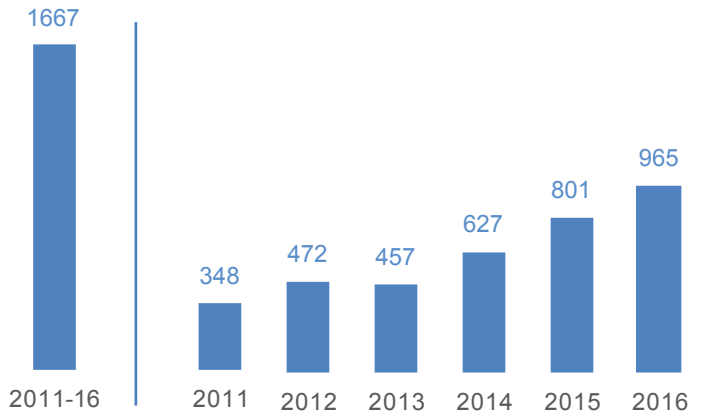
He added: "Venture investing makes no sense in a financial sense [to GPIF] but what makes global economy more sustainable is global entrepreneurship. GPIF is the ultimate beneficiary – more IPOs. That is why I encourage [venture and entrepreneurship] everywhere I go."

Ding Xuedong, chairman of the state-funded $810bn China Investment Corporation (CIC), this month said it would pay more attention to alternative investments and set up a sustainable development mechanism to prevent risks. Previously, CIC mainly invested in equities and fixed income, although it had taken a stake in alternatives asset manager Blackstone.

Corporations, perhaps unsurprisingly, have already moved faster than this. Three-quarters of the Fortune 100 list of biggest companies are active in corporate venturing by investing in venture rounds directly or through commitments to third-party funds, and 41 of them have specialised CVC units, according to GCV Analytics. Of the 25 outliers, almost all are non-US-listed, usually state-owned enterprises based in China, such as State Grid, Sinopec and China State Construction Engineering.

Two years ago, for our inaugural World of Corporate Venturing 2015, and GCV Analytics found 47 of the Fortune 100 were involved in corporate venture capital (CVC).

Active corporate investors 2011-16



Source: GCV Analytics

In 2016 alone, GCV reported 60 new CVC units were launched, along with a record number of 142 corporate-backed VC funds and even more accelerators and incubators. Many corporations have started investing without setting up a formal CVC unit.

Over the past six years, GCV Analytics has tracked 1,667 corporate investors which have participated in at least one VC round, and 857 out of those 1,667 also have a specialised CVC unit.

This diversity of approach creates concerns. Many corporate investors are episodic, with 965 making a deal last year, according to GCV Analytics *(see chart above)*.

The top 20% of CVCs, such as GCV Leadership Society Luminary members Intel Capital, Tencent, Capital One, Merck Global Health Innovations, GE Ventures and Johnson & Johnson Innovation–JJDC, are responsible for about 85% of dealflow, according to GCV Analytics. A fifth of CVCs – often the same ones – also generated an annual rate of return of 30% or higher, according to GCV's annual survey.

These are the leaders in the industry but their good work and professionalism risks being drowned by the noise of less thoughtful peers doing a handful of deals then retreating, leaving entrepreneurs confused and competitors for quality investments with a marketing edge.

As GCV noted in its December and January issues regarding the end of the so-called golden age of corporate venturing, there is greater professionalism in the industry as old-style amateur venture capitalists are disrupted by investors, whether philanthropic and angel, university-focused, corporate, government or the top VCs, offering a better service around entrepreneurs' need for cash, customers, staff and exits.

In our annual survey, carried out this year in partnership with academics from Harvard, Stanford, Chicago universities'

business school, Mark Sherman, managing director at Telstra Ventures, said: "Strategic growth investing will become an increasing force in 2017 and in years to come. Corporates will move from under 15% of total ventures dollars invested in the early 2000s to 25% today to over 35% in the next five to 10 years.

"Strategic growth investing is different from CVC in that it is larger investment sizes, global orientation, and providing commercial relationships to attract the best entrepreneurs."

Thomas Grota, investment director at Germany-based phone operator Deutsche Telekom, as part of his annual review and outlook blog, said: "Corporates will still be active in the investment scene to support startups but not by traditional VC investments in early rounds.

"Most of them will hand over the seed and early-stage investments to external funds. They will use the dealflow for innovation screening but not as an active investor.

"In growth stage they will evaluate investment rounds but rather as a dominant shareholder outside VC terms."

Claudia Fan Munce, venture adviser at New Enterprise Associates, former managing director of IBM Venture Capital Group, chairman of GCVs Leadership society advisory board and winner of the industry's Lifetime Achievement Award, said 2017 would be about: "How innovations that drive growth of the parent corporation has been sourced through its corporate venture activities, investing, incubating, business development for commercial partnership, M&A and other things that are part of the corporate venture portfolio of activities."

Deal opportunities

This "portfolio of activities" might be broadening but the goal remains the same – to find the innovative ideas and products and services of the future.

And while innovation capital and its sources are increasing and diversifying, opportunities to invest it are also increasing.

Global Corporate Venturing's table of tech to watch out for last year included:

- 3D printing and additive manufacturing
- Advanced materials
- Advertising tech
- Agritech
- Antibiotics
- Artificial Intelligence (AI), machine learning and big data
- Augmented and virtual reality
- Blockchain and cryptocurrency
- Boutique food and drink brand startups
- Brain research
- Crispr, genome editing and bio-precision medicine
- Communication platforms
- Crowdfunding and peer-to-peer lending platforms
- Drones and autonomous vehicles
- Education, including Moocs
- Energy and storage
- Gaming experimentation
- Internet connectivity and access
- Internet of things with sensors-RFID
- Messaging
- Mobile
- Modularisation
- Robotics
- Security, cyber and physical
- Sharing and on-demand economy

The first part of the last year's outlook covered genome-editing tools and their progeny and a possible future evolution of computing to support artificial intelligence through quantum computing; the second part looked at companies fuelling the mind and body through virtual reality and improved food production; the third part covered communications through emerging space and internet access providers and application platforms; and

> **The good work and professionalism of industry leaders risks being drowned by the noise of less thoughtful peers doing a handful of deals then retreating, leaving entrepreneurs confused**

the fourth part looked at the energy space, with a focus on the niche startup area of nuclear and more critical area of batteries.

Peter Diamandis, co-founder of Singularity University, in his review of tech trends from last year, noted the accelerating connectivity of people and the march of AI, how solar and renewable power was cheaper than coal, the first glimpses of the end of cancer and other diseases, and an extension to human life, and the development of autonomous vehicles, drones, flying cars and the conquest of space, in part through breakthroughs in physics.

This year these major themes are still driving developments *(see outlook predictions from our survey)*.

Benedict Evans, partner at VC firm Andreessen Horowitz, borrowing the seminal quote from his boss, Marc Andreessen, in 2011 about how software was "eating the world", laid out last month his view that "mobile is eating the world".

Evans said: "As we pass 2.5 billion smartphones and head towards 5 billion, and mobile moves from creation to deployment, the questions change. What is the state of the smartphone [60% of time online involves smartphone apps], machine learning and Google, Apple, Facebook and Amazon [which have more than $400bn in combined annual revenues with capital expenditure of nearly $30bn], and what can we build as we stand on the shoulders of giants?"

But Evans had already identified the seeds of the next transformation, quoting the view of Sundar Pichai, CEO of Microsoft, that we will "move from mobile-first to AI-first".

And Evans said imaging – cameras – combined with machine learning,"may be becoming a universal sensor" and asked: "What if computers can read images as they can read text"?

Looking at what these platform technologies could enable, he said frictionless computing, such as voice controlled applications and technology including Amazon's break-out Echo system, automotive and e-commerce would be important opportunities.

His colleague, Peter Levine, partner at Andreessen Horowitz, noted how the shift into cloud computing was being impacted by developments in edge computing – effectively servers and processors held locally rather than remotely – to help autonomous cars, drones, home automation systems and consumer electronics work.

The predictions of Fred Wilson, legendary VC at Union Square Ventures, included: "Tech investors will start to adopt genomics as an additional information technology investment category, blurring the distinction between life sciences and tech investors that has existed in the VC sector for the past 30 years.

"This will lead to a funding frenzy and many investments will go badly. But there will be big winners to be had in this sector and it will be an important category for VCs for the foreseeable future."

Competition from non-specialists will impact healthcare companies' openness to a broader range of venturing. Last year, Bruce Booth, veteran investor at Atlas, noted how over the past 20 years, "externally-sourced programs – in-licensed – have delivered almost a twofold higher rate of success in development versus in-house programs" and by 2015 more than 75% of its deals had corporate venture groups as co-investment partners compared to below 5% a decade earlier.

Just as the context to the venture industry's shift to being able to raise $100bn funds through new sources of capital, so the ability of technology-enabled companies to have hundreds of billions in revenues is significant. The five largest US companies by market capitalisation at the start of this year were:

- Apple: $570.7bn
- Alphabet, parent of Google: $560bn
- Microsoft: $434bn
- Amazon: $365bn
- Facebook: $354bn

Oil major Exxon Mobile was sixth with a $351bn market cap.

In China, Tencent surpassed China Mobile to become the country's largest corporation with a HK$1.99 trillion ($256.6bn) market cap in September.

With the market caps of just these six tech companies totalling nearly $2.5 trillion, no wonder large amounts of venture money can now be raised and companies are buying more portfolio companies. GCV's analysis in its December issue revealed about a fifth of M&A exits over the previous three years went to a parent of a corporate venture-backed company.

Semil Shah, investor at Haystack, in his summary last year said there were "incredible shifting sands underneath traditional VC, with more funding checkpoints, the number of startups and VC firms continuing to increase, the returns coming in, but concentrated, and people slowly leaving traditional VC".

He added: "Limited partners [LPs – investors in venture funds] see tons of opportunities to find and partner smaller or newer firms and find new ones that can scale and perhaps not get too big.

"We now see dozens of firms which started as smaller seed firms now managing well over $100m in a fund and taking on the new series A; now seed firms are looking for traction and data to analyse; now pre-seed is actually a category that institutional LPs have added to their lexicon; and, perhaps most important, the next crop of founders are not as swayed or in awe of the larger institutional VC brands that many LPs have admired for years.

"And, new LPs are in the mix too – it is not clear which models and vehicles and managers will build the best flytraps to catch the next big outcomes. It is all up for grabs."

Impact on society

Not everyone, however, will grab an equal share, even if some form of universal basic income is introduced to help ameliorate the shock of moving to an AI-first world. Concentration of wealth and economic fears can lead to macro instability, regardless of the impact of technology on politics by alternative means – war. With cyber being the fifth battleground and conflicts being generally regarded as more likely in a balance of power, technology changes create opportunities for emerging powers.

In politics, voting results in 2016 lead to plenty of change from the Philippines to the UK to the US. But the unhappiness, or hope in different forms, expressed by large parts of these electorates – potentially to be replicated in elections in Germany and others this year – that challenged the liberal consensus, could just end up reinforcing the issues concerning people rather than finding ways to tackle them.

In GCV's October's editorial – Is now the "most treacherous" moment? – the magazine looked at the zeitgeist of low yields and high valuations and how society was starting to separate intelligence from consciousness in its search for human immortality, bliss and divinity.

Yuval Harari's latest book – Homo Deus (Man as God) – argues that some people might upgrade themselves to live longer and with more power, but those who cannot do so appeared to become politically and economically less important. Perhaps the most insightful part of Harari's book, which is out in the US this year, was the examination of how the past three centuries' broadly humanist approach is being superseded by one, born in Silicon Valley, of "dataism".

Harari concluded his book with a question: "What will happen to society, politics and daily life when nonconscious but highly intelligent algorithms know us better than we know ourselves?"

It is a question with which investors are increasingly starting to grapple as part of a shaking of fundamental entrepreneurial tenets, such as whether it is better to ask for forgiveness than permission.

But while some things shift and change and the questions they raise are renewed, other things remain the same – our gratitude.

Thank you to our partners, Paul Gompers at Harvard University and National Bureau of Economic Research, Will Gornall at University of British Columbia, Steven Kaplan at University of Chicago Booth School of Business and National Bureau of Economic Research and Ilya Strebulaev at Stanford University Graduate School of Business and National Bureau of Economic Research, for helping GCV with our annual corporate venturing survey; to Jody Thelander, CEO at J Thelander Consulting, for running the compensation survey analysed by Bell Mason Group; and to all the thousands of readers and hundreds of members of the GCV Leadership Society for sharing your data, insights and support over the past year, and to the sponsors and commercial supporters that enable us.

Wendell Brooks, president of Intel Capital, described in his first keynote at the Global Corporate Venturing & Innovation Summit last year his own moment of enlightenment that the industry was about "asking not what your portfolio companies can do for you, but what you can do for your portfolio companies". For us, the same spirit applies. So, how can we help you?

What will happen to society, politics and daily life when nonconscious but highly intelligent algorithms know us better than we know ourselves?

THE MOST IMPORTANT TRENDS OF 2016

James Mawson, editor-in-chief

Thank you to our partners, Paul Gompers at Harvard University and the National Bureau of Economic Research, Will Gornall at University of British Columbia, Steven Kaplan at University of Chicago Booth School of Business and the National Bureau of Economic Research, and Iya Strebulaev at Stanford University Graduate School of Business and the National Bureau of Economic Research, for helping Global Corporate Venturing with our annual corporate venturing survey of industry leaders.

We asked these leaders: "What were the most important trends in 2016?" and "What will be the big opportunities of 2017?"

What were the most important trends in 2016?

Mark Sherman, managing director at Telstra Ventures:

The largest VC investors in the world are Alibaba, Tencent and Baidu. China has entered the global VC market in a significant way. China is likely to become the second most important VC market after California's San Francisco Bay area within five to 10 years. With SoftBank's Saudi announcement, Asia will only increase in importance in global VC. Sector-wise, next-generation communications (Twilio, Line), cloud apps (Coupa, Apptio), next-gen infrastructure (Nutanix) and security.

Christophe Chazot, group head of innovation at UK-based bank HSBC:

First, the increasing use of deep learning techniques in all segments. Second, the exponential threats on security leading to fraud and privacy issues.

Jon Lauckner, chief technical officer and vice-president of R&D at General Motors and president of GM Ventures

Very large investments and acquisitions ($100m to $1bn) by several auto manufacturers and automotive suppliers, including GM, Toyota, VW and Ford, in ride-sharing and autonomous vehicle technology startups. Several of these companies have not traditionally been venture capital investors, but are now taking a more active role due to the growth of transportation-as-a-service.

Peter Cowley, investment director at Martlet, the corporate angel division of UK-based engineering company Marshall. He is also a shareholder in Mawsonia, publisher of Global Corporate Venturing

In the UK, continuing valuation inflation, with no evidence yet from exits that this inflation is justified, driven partly by commoditisation of early-stage investment money.

George Kellerman, chief operations officer and general partner at Yamaha Motor Ventures & Laboratory Silicon Valley:

The rise of data analytics and robotics in agriculture.

Fernand Lendoye, managing director at Aviva Ventures:

Digitisation, peer-to-peer, big data.

Eric Landais, chief growth officer at Degremont:

Renewables and digital.

Marc Oerke, head of digital corporate venturing at Allianz Group:

Insurance companies are finding their way into the startup ecosystem.

Shin Takano, director at Murata Ventures:

Virtual reality technologies in practical use. Revival of artificial intelligence as a cloud-based platform.

Steven Berger, managing director, new business development at Asahi Kasei America:

Healthcare monitors and associated IT. Water reuse.

Shankar Chandran, managing director and head of Samsung Catalyst Fund:

In 2016 we saw and invested in several opportunities where data-centric approaches to building smart devices – internet of things, robotics, smart cars – created new business models and use cases for consumers and enterprises.

Savitha Srinivasan, vice-president of ecosystem strategy and development at IBM Commerce:

The democratisation of artificial intelligence (AI) with a fairly broad adoption of machine learning technologies in every industry and consumer application. Take chatbots as an example, now more than 51 corporations have AI-powered chatbots deployed to streamline business processes and customer service.

Thierry Piret, Solvay Ventures:

Growing CVC involvement.

Phil Graves, managing director at Tin Shed Ventures:

Investors are beginning to evaluate the social and environmental facets of the companies they invest in.

Yoshiaki Tanaka, director of business development at SoftBank US:

Business-to-consumer, business-to-business and internet-of-things (IoT) business use cases. IoT connectivity – low power wide area – IoT security, IoT analytics.

Markus Goebel, managing director at Novartis Venture Fund:

Market performance of biotech, pharma and IPOs, Crispr.

Claudia Fan Munce, venture adviser at New Enterprise Associates and former managing director of IBM Venture Capital Group

The continued rise of corporate venture as a critical part of the corporation. Corporations need to respond to the changes in the marketplace not just by setting a CVC unit up – as we saw since 2012 in the growth of CVC numbers – but by the position of power and influence the leaders of corporate venture have within the structure of decision-making within large corporations. This would be evident by the recruitment of corporate venture talents as high-level vice-presidents and presidents, and with a direct reporting structure to CEO, chief financial officer and chief technology officer.

Abdul Guefor, investment director at Intel Capital

Big data and drones.

> The democratisation of artificial intelligence with a fairly broad adoption of machine learning technologies in every industry and consumer application

Pankaj Makkar, managing director at Bertelsmann India Investments:

Too much money chasing not-too-great companies.

Bruce Haymes, managing director at Nielsen Ventures:

The divergence of corporate venture capital from institutional venture capital. In 2016 we saw traditional venture capital raising larger funds and putting those funds to work in late-stage startups – those with more than $1bn valuations in many cases. In essence, traditional VCs took a flight to safety. During the same time, corporate VCs became more active with early-stage programmes, even going as far back in lifecycle to seed state investing and incubators. My sense is that corporate VCs had tremendous leverage and attention from early-stage startups that in previous years would have been dominated by institutional venture capital.

Yash Patel, investor at Telstra Ventures:

From a sector perspective, the emergence of artificial intelligence will disrupt a lot of industries. From a CVC perspective, the growth and validation of corporate venture dollars – for example, Baidu and SoftBank – is interesting. Deploying these dollars carefully by staffing up appropriately will be key.

Skyler Fernandes, managing director of Simon Venture Group:

More investments in later-stage seed rounds and series A, especially with direct-to-consumer brands. The competition is increasing, as there are more seed and series A opportunities with more traction than before. Great startups are proving they can do more with less.

Christopher Langford, director of Lowe's Ventures:

Companies are starting to access the IPO window again instead of taking huge rounds of late-stage capital to remain private.

Brian Pietras, head of technology ventures at Hays:

Small and medium-sized enterprise software-as-a-service (SaaS), marketplace-enabled SaaS, fintech and insurtech.

Dion Lisle, vice-president, head of fintech at Capgemini:

Application programming interfaces coming into full production across the financial services spectrum probably made the most difference even though blockchain hogged all the headlines.

Renato Valente, Brazil manager for Telefónica Open Future:

A lot of corporate interest in understanding how to invest.

John Hamer, head of Monsanto Growth Ventures:

Agtech was big. Drones, robotics, machine learning.

Arindam Guha, corporate development executive for M&A and Venture Investments at IBM:

Artificial intelligence technology.

Masatoshi Ueno, senior manager at Asahi Glass:

Autonomous vehicles.

Minette Navarrete, president at Kickstart Ventures:

Banks tiptoeing into fintech. Southeast Asia becoming viable for an Asia play versus the conventional focus on China and India.

Ignaas Caryn, director of corporate strategy at Air France-KLM

Autonomous vehicles and fintech.

John Suh, executive director, Hyundai Ventures

The automotive industry and related sectors – for example, mobility-as-a-service.

Roel Bulthuis, senior vice-president and managing director at Merck Ventures

A round financing commitments straight to potential liquidity, reducing refinancing risks and the complexity of deals.

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Rodrigo Sanchez Servitje MANAGING PARTNER • **rodrigo@b37.vc**

Peter Faaborg-Andersen, global marketing and business development director at Novozymes:

Big corporates are starting to see venture capital as an important part of their strategic investment tool box!

Kevin Riches, director at Carteme:

Brexit, Trump, unstable political environment.

Roman Samsonov, director of investments at Sberbank Venture Capital:

Data science.

Jonathan Costello, entrepreneur-in-residence (EIR) leader for Europe at Cisco:

Deep learning.

Michael Bowring, senior investment manager at Sabic Ventures:

Energy storage and recycling plastics.

David Vay, legal counsel at Orange Digital Ventures:

Fintech, internet of things.

Kampanat Vimolnoht, venture investment manager at Ascend Capital:

Fintech, payments and e-commerce, social commerce (early 2016).

Riyadh AlRuwais, partner at STC Ventures Fund:

Saudi Arabia investment in Uber, launching the largest regional e-commerce in the Middle East and North Africa region by a Saudi public investment fund.

Frank Andrasco, VC at Siemens Venture Capital:

Lots of new corporate investors dipping their toe into the market.

Xuan Chen, managing director at the ARM/HOPU fund:

Artificial intelligence, internet of things, robotics.

Seiji Sato, general manager of business development unit at Sumitomo Corporation Europe:

Sharing economy.

Joel Albarella, senior vice-president and head of New York Life Ventures:

The humanisation of hardware and software.

Ankur Kamalia, head of venture portfolio management at Deutsche Börse:

The material increase in corporate venture capital's contribution as a percentage of VC spend, demonstrating an increasing desire and need for collaboration between established corporates and new entrants in the market.

Asish Xavier, vice-president of venture investments at J&J Innovation–JJDC:

Decrease in the number of unicorns being generated, and lack of the long-awaited tech IPO boom.

Peter Donat, head of new ventures at First Data:

Down rounds and investor rationality in irrational valuations with bad business models.

Cynthia Mandjek, investment analyst at Orange:

Fintech, mobile banking.

Ajay Sharma, investment associate at JetBlue Technology Ventures:

The return of large-scale corporate venture investing.

Anthony Palcheck, managing director at Zebra Technologies

Robotics and automation, analytics, artificial intelligence, augmented reality.

Hiroshi "Hiro" Saijou, CEO and managing director at Yamaha Motor Ventures & Laboratory Silicon Valley

Precision agriculture, autonomous cars

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THE BIG OPPORTUNITIES IN 2017

What will be the big opportunities in 2017?

Claudia Fan Munce, venture adviser at New Enterprise Associates and former managing director of IBM Venture Capital Group:

> How innovations that drive growth of the parent corporation are sourced through corporate venturing activities, investing, incubating, business development for commercial partnership, M&A and other things that are part of the corporate venture portfolio of activities.

Christophe Chazot, group head of innovation at UK-based bank HSBC:

> First, how financial data can be used safely to help individuals, banked and non-banked, and corporates, small and large, to be more efficient and pertinent in achieving their financial objectives. Second, ensuring the increasing number of digital services are done in a secure way for customers and society.

Peter Cowley, investment director at Martlet, the corporate angel division of UK-based engineering company Marshall:

> A strong ramp-up of machine learning and artificial intelligence – software, robots – and physical robotic, including drones, opportunities. Plus the internet of things, both business-to-consumer and business-to-business, and genomic analysis tools.

Jon Lauckner, chief technical officer and vice-president of R&D at General Motors and president of GM Ventures:

> Startups that develop new sensing technologies, new types of microprocessor technology and advanced cognitive software for drones and autonomous vehicles.

George Kellerman, chief operations officer and general partner at Yamaha Motor Ventures & Laboratory Silicon Valley:

> Artificial intelligence (AI) is eating software, hardware and everything in between.

Skyler Fernandes, managing director of Simon Venture Group:

> The advances in artificial intelligence and machine learning will create commercially viable solutions across multiple industry verticals.

Minette Navarrete, president at Kickstart Ventures

Innovation has historically grown through the levers of invention, industrial capital and traditional financial investment. Corporate venture capital can accelerate innovation by adding in the layer of strategic partnerships – not just smart money, but smart connected money, providing access to resources and relationships that money typically cannot buy. Corporates have a long way to go towards truly robust and productive partnerships with startups – corporate venturing aligns interests in quite a concrete fashion, and more corporate venture funds can supplement the global funding availability, as pure financial investors become more risk-averse. We see this particularly in the telecoms and media industries going more courageously into internet and over-the-top for 2017.

Fernand Lendoye, managing director at Aviva Ventures:

Artificial intelligence, internet of things with sensors, and genomics.

Mark Sherman, managing director at Telstra Ventures:

Strategic growth investing will become an increasing force in 2017 and in years to come. Corporates will move from under 15% of total ventures dollars invested in the early 2000s to 25% today to over 35% in the next five to 10 years. Strategic growth investing is different from CVC in that it involves larger investment sizes, global orientation, and the commercial relationships to attract the best entrepreneurs.

The big opportunities in 2017 will be in consumer millennial video, next-generation networking, security, cloud apps and infrastructure, and longer-term disruptive technologies, such as artificial intelligence, virtual reality, augmented reality, drones and robots.

Abdul Guefor, investment director at Intel Capital:

Autonomous vehicles and augmented and virtual reality.

John Suh, executive director, Hyundai Ventures:

Hardware and artificial intelligence (AI) will continue to be very important. Corporate venture capital may take the lead in startups whose primary value proposition is in hardware, especially new computer architecture and sensors. AI methods and techniques that go beyond deep learning will emerge as a very hot area.

Markus Goebel, managing director at Novartis Venture Fund:

Talking about VC investing, the ones mastering in a holistic way the execution of highly attractive science and intellectual property, which speaks to the need for superior skills and financial firepower within management teams, investors and board members.

Roel Bulthuis, senior vice-president and managing director at Merck Ventures:

The convergence of digitisation, materials science and healthcare, empowering patients in the management of their health and their disease.

Lana Ghanem, managing director at Hikma Ventures:

Within the area of digital health, it will be big data analytics platforms and condition-specific wearables and genomics.

Steven Berger, managing director, new business development at Asahi Kasei America:

Healthcare monitors and associated IT. Water reuse.

Shankar Chandran, managing director and head of Samsung Catalyst Fund:

I see artificial intelligence and machine learning, or deep learning, applied to various applications including digital health, augmented reality, virtual reality, the internet of things, smart machines, as a massive opportunity that will create a new class of successful companies over the next few years.

Savitha Srinivasan, vice-president of ecosystem strategy and development at IBM Commerce:

In the enterprise space, it will continue to be the democratisation of artificial intelligence (AI) as enterprise processes infuse machine learning and data science into every business process to enhance productivity and make better business decisions. In fact, as announced by our CEO Ginni Rometty at the IBM World of Watson, the opportunity for better decision-making with AI technologies is $2 trillion by 2020.

Thierry Piret, Solvay Ventures:

Industry 4.0.

Renee Ryan, vice-president at Johnson & Johnson Innovations–JJDC

The intersection of healthcare, technology and big data.

Phil Graves, managing director at Tin Shed Ventures

Investments in companies with strong sustainability policies will deliver above market returns.

> I see artificial intelligence and machine learning, or deep learning, as a massive opportunity that will create a new class of successful companies over the next few years

Yoshiaki Tanaka, director of business development at SoftBank US:

The internet of things (IoT) in several specific spaces, such as digital marketing, connected vehicle, smart home and facility management, and insurance, because these industries already have a bunch of structured data. If the unstructured data can combine with structured data, that would be a very useful data and IoT business.

Bruce Haymes, managing director at Nielsen Ventures:

Machine learning and artificial intelligence (AI) will continue to be top of mind, but these are much broader than what corporate VCs will focus on to say that these are general investment opportunities. Instead, 2017 will be the year that corporates look to machine learning and AI to solve the very specific manual processing issues associated with their individual industries. Additionally, the blockchain continues to be a general technology theme that interests corporates, and, similar to machine learning and AI, 2017 will be the year in which corporates fine-tune their investment opportunities around blockchain towards solutions that represent specific evolutions or solutions for their specific verticals.

Ignaas Caryn, director of corporate strategy at Air France-KLM:

Smart mobility and transportation, and blockchain.

Christopher Langford, director of Lowe's Ventures:

The biggest investment opportunities will lie in applying the various forms of artificial intelligence and automation form factors – robotics, drones. The biggest CVC opportunities will be in continuing to evolve and demonstrating to entrepreneurs that CVC is more like financial VC but with added benefits.

Anupam Singh, principal at Saudi Aramco Energy Ventures:

Analytics and big data for industrial applications.

Dion Lisle, vice-president, head of fintech at Capgemini:

Blockchain and distributed ledger technology, and artificial intelligence and machine learning are the best technology bets in 2017. Smart CVCs will find the leading lights in each category and not only invest but ensure they permeate their organisations.

Eric Landais, chief growth officer at Degremont:

Digital.

Marc Oerke, head of digital corporate venturing at Allianz Group:

Disrupting insurance.

Shin Takano, director at Murata Ventures:

Artificial intelligence (AI) technologies plus practical use of AI technologies in multiple different industries.

Renato Valente, Brazil manager for Telefónica Open Future:

Co-investments with other corporate venturers in Brazil.

Arindam Guha, corporate development executive for M&A and venture investments at IBM:

Smart machines.

Masatoshi Ueno, senior manager at Asahi Glass:

Enterprise use of augmented reality and virtual reality.

Peter Faaborg-Andersen, global marketing and business development director at Novozymes:

A record year for corporate venture capital!

Kevin Riches, director at Carteme:

Social impact, security – cyber and physical – and artificial intelligence and machine learning.

Roman Samsonov, director of investments at Sberbank Venture Capital:

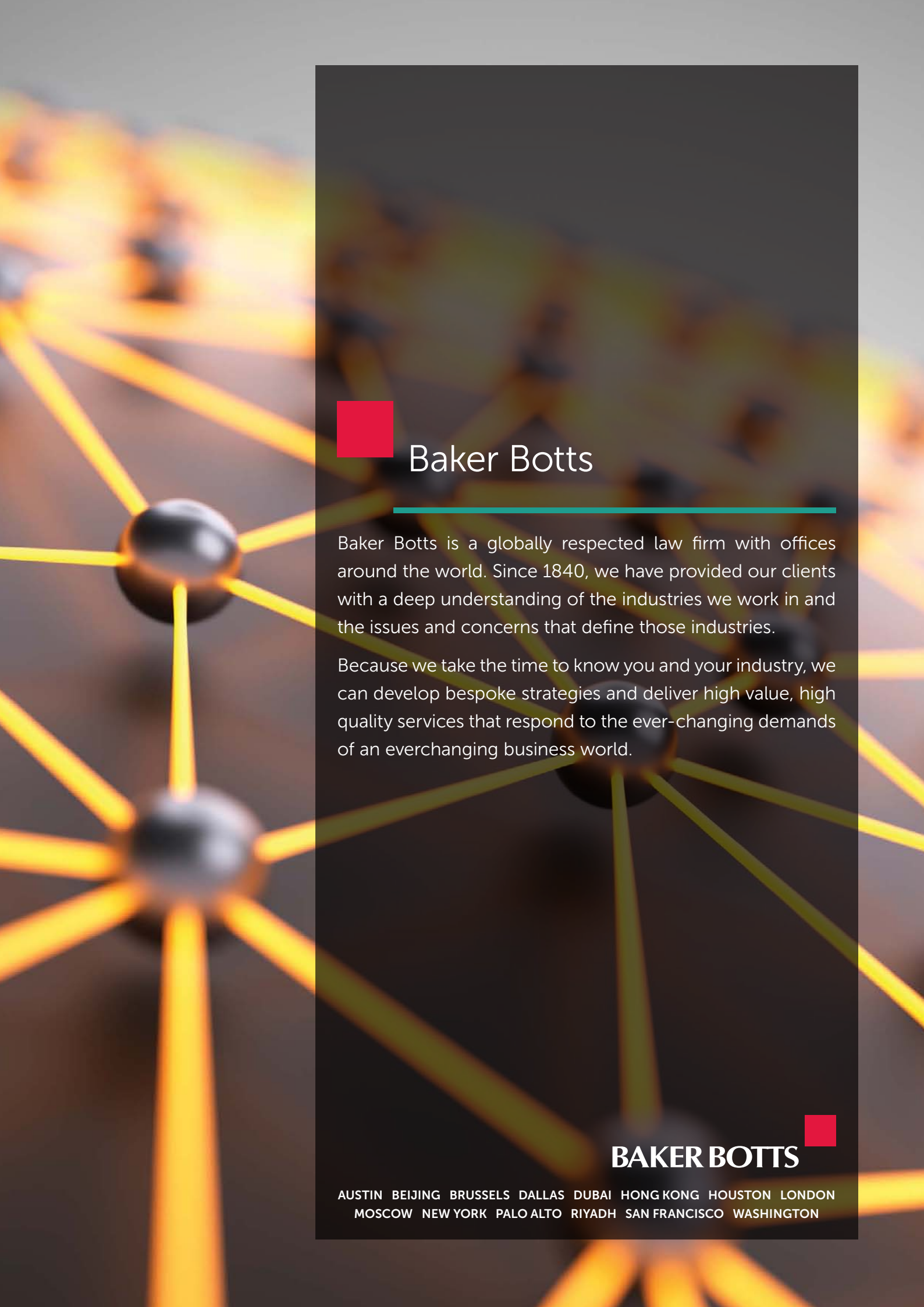
Artificial intelligence for business-to-consumer applications.

John Hamer, head of Monsanto Growth Ventures

Machine learning and AI platforms, remote sensing platforms and transaction marketplaces for specific verticals.

Hiroshi "Hiro" Saijou, CEO and managing director at Yamaha Motor Ventures & Laboratory Silicon Valley

Industrial automation, such as agriculture, smart mobility and transportation.



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Jonathan Costello, entrepreneur-in-residence leader for Europe at Cisco:

Enabling digital trust – to account for the fusion of technologies across the physical and digital worlds.

Michael Bowring, senior investment manager at Sabic Ventures:

Pharma and nano-technologies.

David Vay, legal counsel at Orange Digital Ventures:

Artificial intelligence, fintech and new business in Africa.

Kampanat Vimolnoht, venture investment manager at Ascend Capital:

In fintech, blockchain, investment product and insurance. In other sectors, artificial intelligence, and business-to-business travel and customer relationship management.

Riyadh Al-Ruwais, partner at STC Ventures Fund:

Amazon acquisition for Souq.com.

Frank Andrasco, VC at Siemens Venture Capital:

New lower price point for robotics hardware will create opportunities for robotics software.

Anthony Palcheck, managing director at Zebra Technologies:

Robotics and automation, analytics, artificial intelligence, augmented reality.

Seiji Sato, general manager of business development unit at Sumitomo Corporation Europe:

Mobility service.

Joel Albarella, senior vice-president and head of New York Life Ventures:

"Coopetition" will be an increasingly popular approach for incumbents seeking to digitise in the face of changing consumer needs and market dynamics. This should present solid opportunities for incumbents willing to acknowledge the significant risks to legacy models, and for new entrants willing to loosen the grip on idealism.

Asish Xavier, vice-president of venture investments at J&J Innovation–JJDC:

Investments in diseases of the brain as neuroscience is entering a golden age of understanding the basis of some of the most complex diseases faced by humans.

Peter Donat, head of new ventures at First Data:

Seamless enablement of meaningful consumer omnichannel commerce.

Cynthia Mandjek, investment analyst at Orange:

African startups.

Ajay Sharma, investment associate at JetBlue Technology Ventures:

The industrial internet is reaching a huge tipping point. Companies are now investing in infrastructure to bring legacy assets online.

Don Riley, venture executive at Chevron Technology Ventures:

Probably the major high-impact opportunities for investing in 2017 will be in affordable clean water, robust high-performance last-mile networking, and low-cost robotics.

Pankaj Makkar, managing director at Bertelsmann India Investments

Tech investing, especially in the areas of consumer, healthcare and education, followed by deep tech, will create substantial value.

Brian Pietras, head of technology ventures at Hays

Vertical software-as-a-service (SaaS), hybrid services plus SaaS, and fintech.

"Coopetition" will be an increasingly popular approach for incumbents seeking to digitise in the face of changing consumer needs and market dynamics

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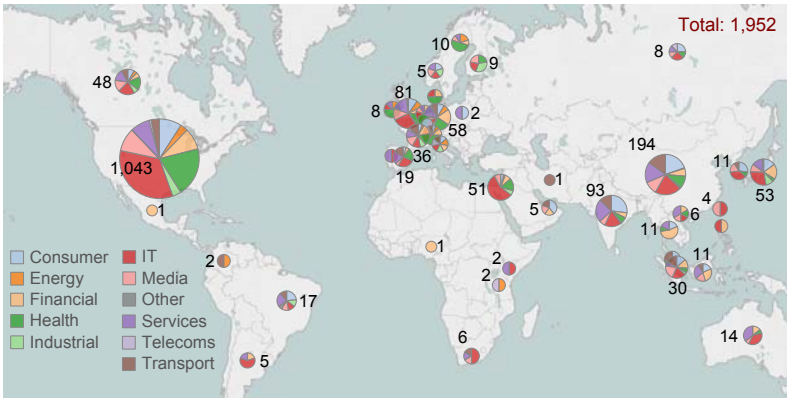
CORPORATE VENTURING CONTINUES TO GROW IN 2016

Kaloyan Andonov, reporter and data analyst

Global view of deals 2016

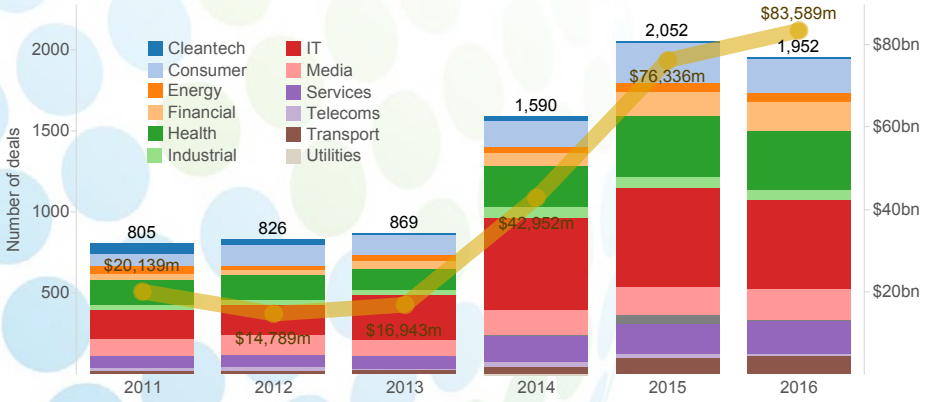


GCV Analytics tracked 1,952 deals worth an estimated $83.59bn of total capital raised. While the deal count is a slight decrease on the 2015 figure, when we tracked 2052 deals, the total dollar value of corporate-backed VC rounds is a new high compared with the $76.34bn in 2015. Furthermore, the total capital involved in 2016 is almost double the estimated $42.95bn of 2014. We are yet to see whether this impressive growth will be sustained through 2017 and beyond.

More than half of the tracked deals took place in the US (1,043). Other noteworthy innovation geographies were China (194), India (93), the UK (81), Germany (58), Japan (53) and Israel (51). Although East Asia still lags behind the US in deal count, the tremendous VC capital with corporate participation was almost invariably fuelled and driven by behemoth multibillion-dollar investment rounds in China-based companies.

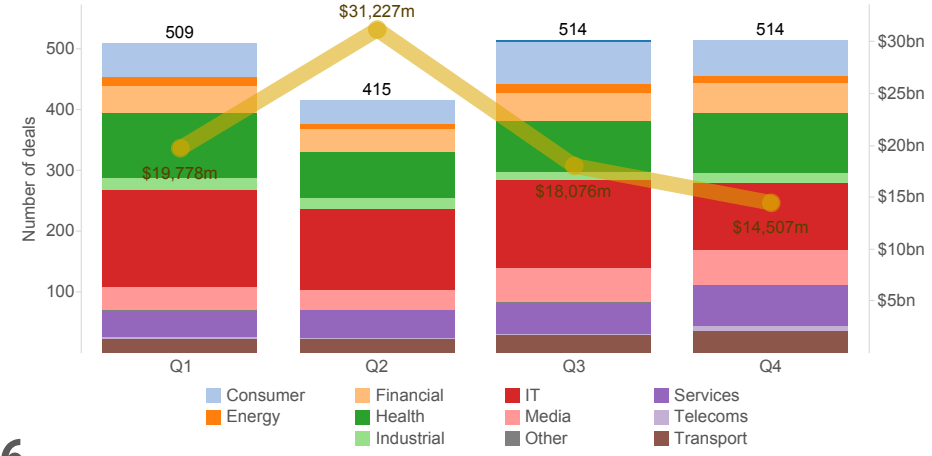
Emerging enterprises in four sectors raised the largest number of rounds – IT with 546 deals, health with 319, consumer with 218 and services with 209. These figures do not necessarily always coincide with the areas and sectors that raised most capital or drew most attention in the media. Last year was the year when the battle on the ride-hailing field in Asia between Uber and local players came to an end. It was also the year when buzzwords like "virtual and augmented reality", "the internet of things", "last-mile delivery", "fintech", and "autonomous driving" became a more present part of the business lexicon.

Deals by year 2011-16

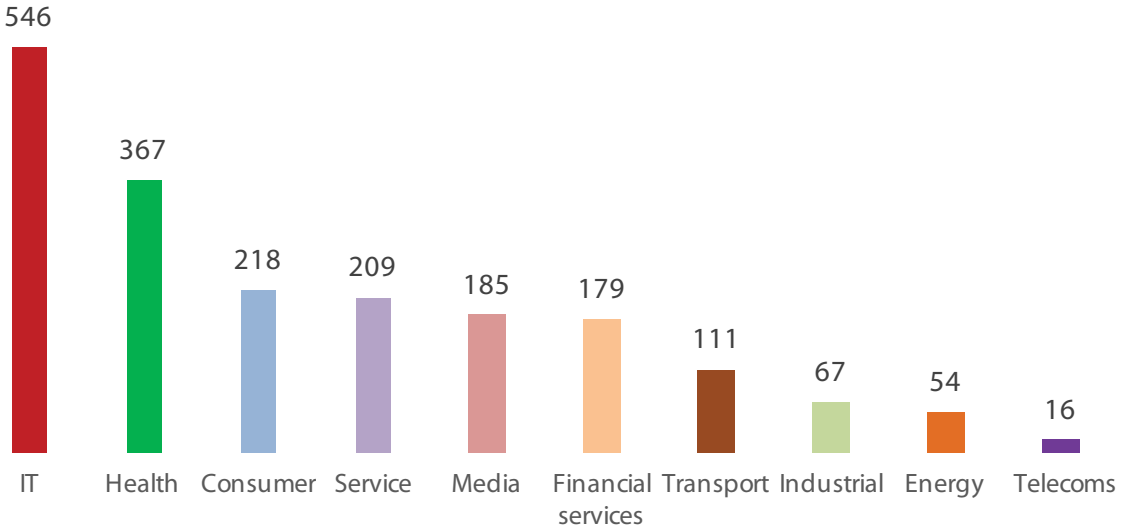


Deals by quarter 2016

Looking at 2016 on a quarterly basis, we observe that Q1, Q3 and Q4 registered almost the same level of investment activity in terms of deal count, while Q2 was notably slower. However, Q2 was record-setting in terms of the total estimated capital involved , with a whopping $31bn invested over its 415 rounds.

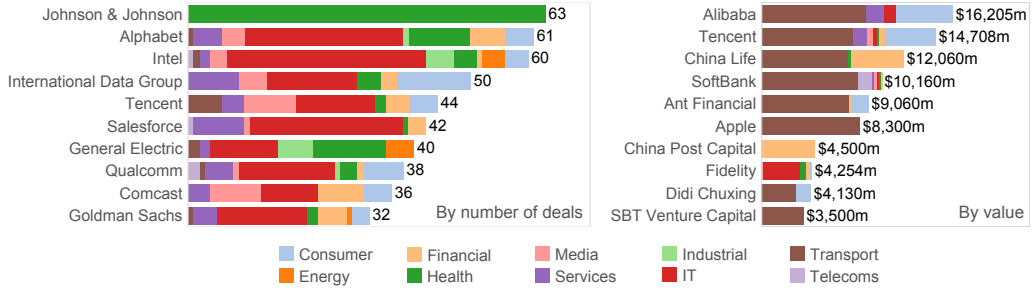


Deals by sector 2016

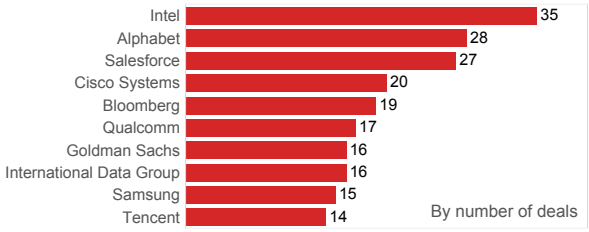


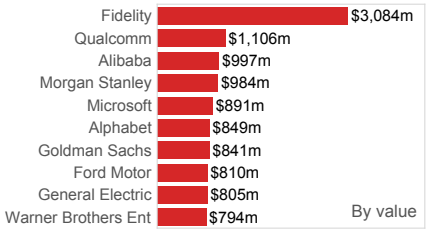
The top corporate investors of 2016 were four US-based players: pharmaceutical company Johnson & Johnson, internet conglomerate Alphabet (Google), semiconductor manufacturer Intel as well as technology research and media group International Data Group (IDG) – with 63, 61, 60 and 50 deals, respectively. The top three investors involved in the largest deals, however, were all China-based: e-commerce platform Alibaba with $16.2bn, internet company Tencent with $14.71bn and insurance company China Life, which took part in deals worth $12.06bn. Unsurprisingly, an array of US and China-based corporate investors were leading ones in almost every sector worldwide: Alphabet, IDG, Tencent, Alibaba, Intel, Salesforce, Qualcomm, Goldman Sachs, General Electric (GE) and SoftBank.

Top investors 2016

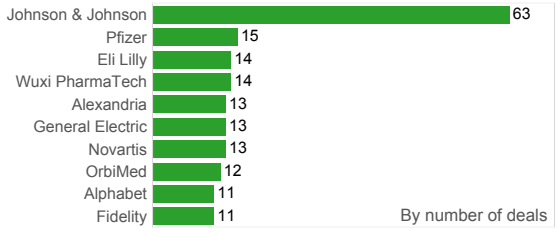


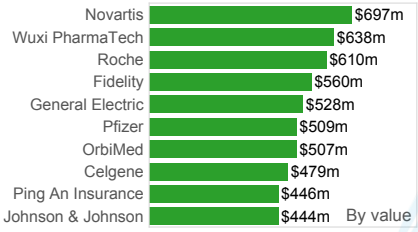
Top investors in IT enterprises



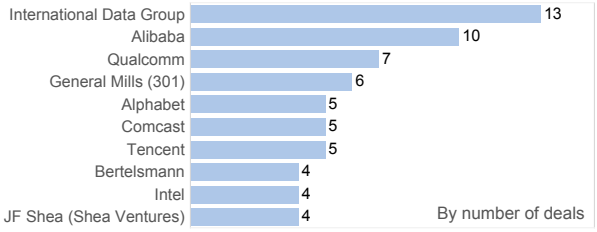


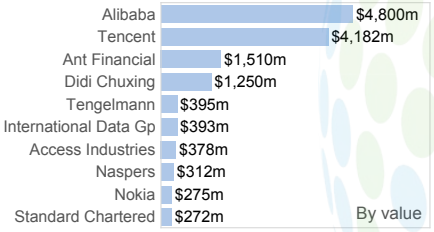
Top investors in health enterprises



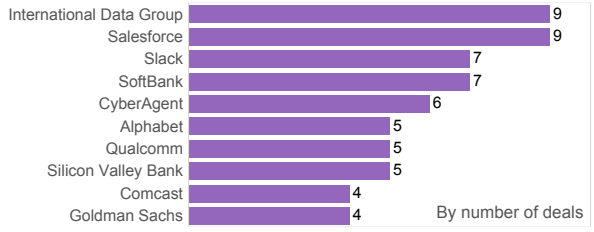


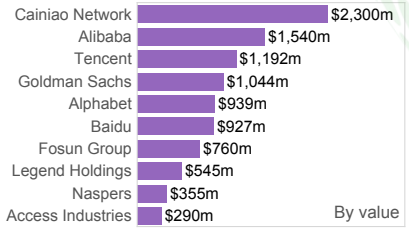
Top investors in consumer enterprises



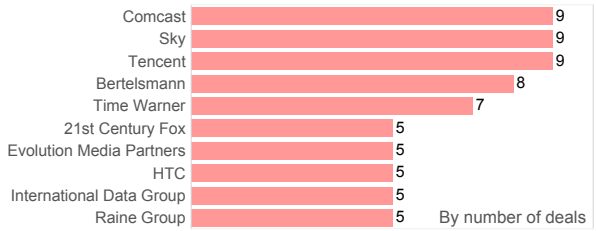


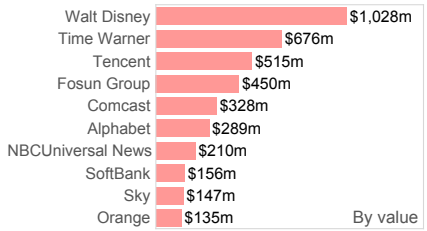
Top investors in services enterprises





Top investors in media



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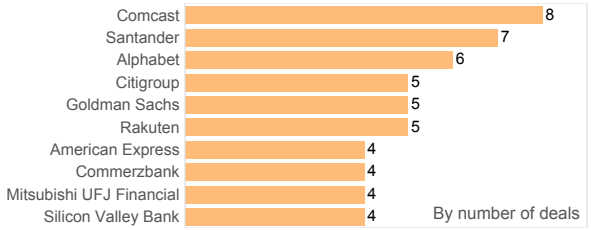
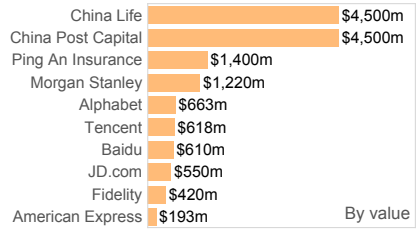
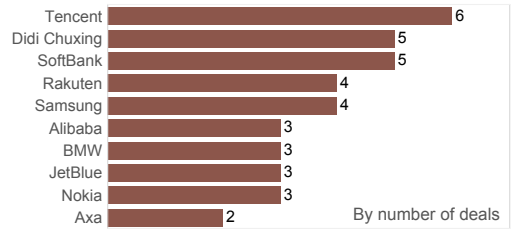
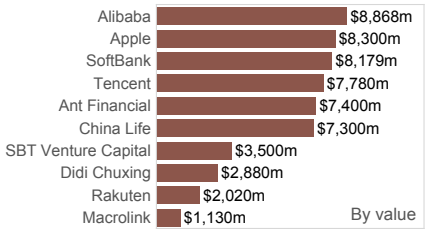
Top investors in financial enterprises



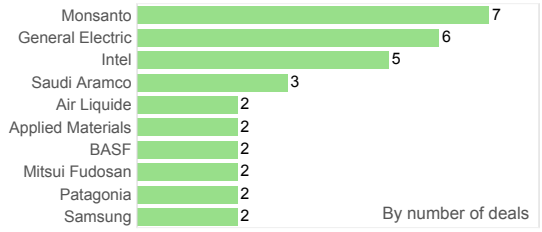


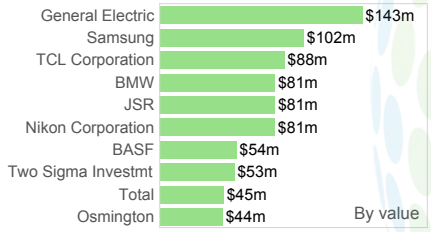
Top investors in transport enterprises



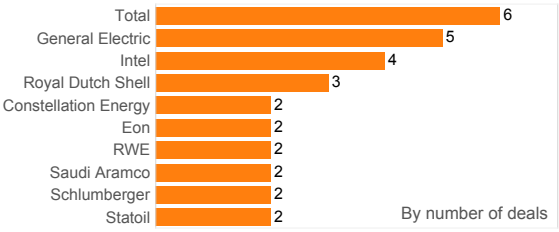


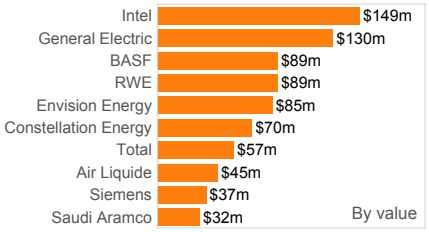
Top investors in industrial enterprises



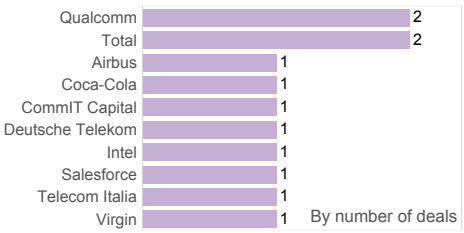


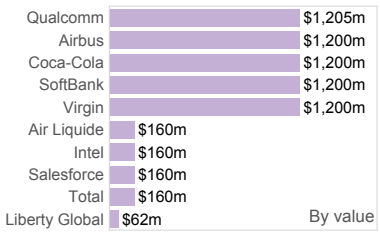
Top investors in energy enterprises

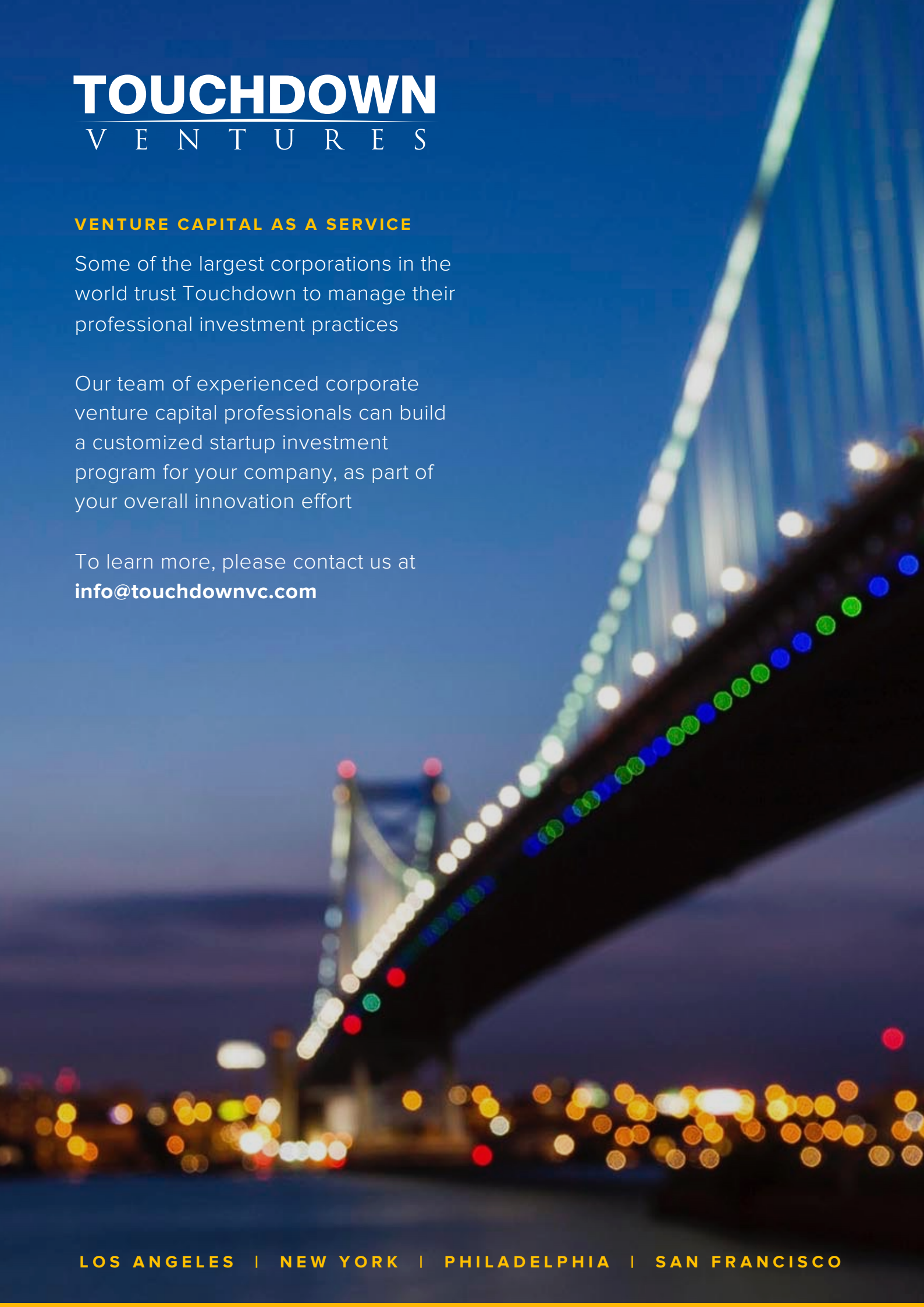




Top investors in telecoms enterprises







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Top 10 corporate venturing investments 2016

Portfolio company	Location	Sector	Round	Round size ($m)	Investors
Didi Chuxing	China	Transport	–	7,300	Alibaba | Ant Financial | Apple | BlackRock | China Life | SoftBank | Tencent
Ant Financial	China	Financial services	B	4,500	CCB Trust | China Development Bank | China Investment Corporation | China Life | China Post Capital | Primavera Capital
Uber	US	Transport	E and beyond	3,500	Public Investment Fund | SBT Venture Capital
China Internet Plus Group	China	Consumer	–	3,300	Alibaba | Capital Today | China International Capital Corporation | DST System | Tencent | TrustBridge Partners
Snapchat	US	IT	E and beyond	1,800	Coatue | Fidelity | General Atlantic | Glade Brook Capital | Institutional Venture Partners | Lone Pine | Sequoia Capital | T Rowe Price
Cainiao Network	China	Services	–	1,540	Alibaba | Cainiao Network | GIC | Khazanah Nasional Berhad | Primavera Capital | Temasek
Ele.me	China	Consumer	E and beyond	1,250	Alibaba | Ant Financial | Didi Chuxing
Lufax	China	Financial services	B	1,220	Cofco | Guotai Junan | Infinity IP Bank of China | Minsheng Shangyin International | Morgan Stanley | Ping An Insurance | undisclosed strategic
Koubei	China	Services	–	1,200	CDH Investments | China Investment Corporation | Primavera Capital | Silver Lake
OneWeb	US	Telecoms	–	1,200	Airbus | Bharti Airtel | Coca-Cola | Hughes Network Systems | Intelsat | Qualcomm | SoftBank | Totalplay | Virgin

Deals

GCV Analytics tracked record-breaking large deals through 2016, often surpassing $1bn. Most conspicuous among them was the presence of ride-hailing platforms in the transport sector, as well as online payment platforms in the financial services sector.

China-based ride-hailing service Didi Chuxing closed the largest-yet financing round by a private venture capital-backed company by raising $7.3bn in debt and equity. The $4.5bn equity portion of the round included $1bn from electronics producer Apple, a reported $400m from e-commerce firm Alibaba and its Ant Financial affiliate, $600m from insurer China Life, and contributions from internet company Tencent, telecoms group SoftBank. Didi Chuxing was formed through a merger of China's two largest ride-ordering platforms – Didi Dache and Kuaidi Dache – in early 2015.

Ant Financial closed $4.5bn in a series B round, which valued the company at about $60bn. The round featured postal service China Post Group and insurance companies including China Life. Other investors included sovereign wealth fund China Investment Corp (CIC), private equity firm Primavera Capital Group, state-owned China Development Bank Capital and CCB Trust, a subsidiary of China Construction Bank. Formed by Alibaba in 2014, Ant brings together several online financial services and investment entities.

US-based ride-sharing app producer Uber received a $3.5bn investment from Public Investment Fund, the sovereign wealth fund of Saudi Arabia. The cash constituted the single largest investment in the company and boosted its total funding to over $12.5bn. Founded in 2009, Uber operates a smartphone app that allows users to hail a car driven by freelance drivers.

China-based local listings and group buying company China Internet Plus Holdings raised over $3.3bn in new funding from undisclosed investors. The firm counts Tencent and Alibaba as investors, and was created when group buying company Meituan merged with local listings and reviews platform Dianping in October 2015, when it was valued at $15bn.

US-based visual messaging platform Snapchat raised $1.8bn in its series F round. Part of the capital ($538m) was provided by Alibaba, which invested alongside financial services group Fidelity Investments, York Capital and Glade Brook Capital. Snapchat operates an ephemeral social messaging platform revolving around videos, text and customisable photos.

Cainiao, a China-based logistics affiliate of Alibaba, received funding from a range of investors in a round reportedly over RMB10bn ($1.54bn). The funding, raised at a $7.7bn valuation, was provided by Singaporean state-owned funds Temasek Holdings and GIC, Malaysia's Khazanah Nasional, a sovereign investment fund, and China-based investment firm Primavera Capital. Cainiao oversees an e-commerce

logistics system that spans more than 120 warehouses and 180,000 express delivery stations across more than 600 Chinese cities.

Alibaba committed $1.25bn to China-based online food delivery platform Ele.me. Alibaba chipped in $900m while its affiliate Ant Financial supplied the remaining $350m. Ele.me operates an online platform used to order food for delivery from local restaurants and takeaways.

China-based online financial services provider Lufax raised almost $1.22bn in series B financing from investors including insurance firm Ping An at a valuation of $18.5bn. The round consisted of $924m in equity funding from investors such as state-owned Bank of China Group, state-owned food producer Cofco, investment bank Guotai Junan and investment group Minsheng Shangyin International, and an additional $292m from its series A backers. Founded in 2011, Lufax oversees an online peer-to-peer lending and brokerage platform with more than 3.6 million active users.

Koubei, an on-demand service provider launched by Alibaba, raised $1.2bn from investors including private equity firm Silver Lake Management, sovereign wealth fund CIC, Primavera Capital and CDH Investments. Launched in June 2015 with $1bn from Alibaba and Ant Financial, Koubei operates an online platform incorporating services such as ride-ordering, restaurant booking, food delivery and event ticketing.

SoftBank agreed to invest $1bn in US-based satellite operator OneWeb as part of a $1.2bn round that featured several other corporates, all existing investors in the company – mobile chipmaker Qualcomm, aerospace group Airbus, beverage producer Coca-Cola, conglomerates Virgin Group and Bharti Enterprises, cable and internet service provider Totalplay, as well as satellite service companies Hughes Network Systems and Intelsat. OneWeb is building a network of 720 low-earth-orbit satellites that will provide internet coverage across the world.

Top 10 corporate venturing exits 2016

Portfolio company	Location	Sector	Exit type	Exit size ($m)	Acquirer	Investors
Stemcentrx	US	Health	Acquisition	9,800	AbbVie	Artis Ventures | Fidelity | Founders Fund | Silicon Valley Bank
Legendary Entertainment	US	Media	Acquisition	3,500	Dalian Wanda Group	SoftBank | Waddell & Reed
Jet	US	Consumer	Acquisition	3,300	Walmart	Alibaba | Alphabet
Vizio	US	Consumer	Acquisition	2,000	LeEco	AmTran Technology | Hon Hai
Skyscanner	UK	Services	Acquisition	1,740	Ctrip	Artemis Investment Management | Baillie Gifford | Khazanah Nasional Berhad | Scottish Equity Partners | Sequoia Capital | Vitruvian Group | Yahoo
Cruise Automation	US	Transport	Acquisition	1,000	General Motors	Founder Collective | Maven | Qualcomm | Sam Altman | Spark Capital
Lazada	Germany	Consumer	Other	1,000	Alibaba	Alibaba | Kinnevik | Rocket Internet | Temasek | Tesco | Verlinvest
Dollar Shave Club	US	Consumer	Acquisition	1,000	Unilever	Comcast | Dragoneer Investment Group | Forerunner Ventures | Technology Crossover Ventures | VenRock
China Internet Plus Group	China	Consumer	Other	900	–	Alibaba | Dalian Wanda Group | Fosun Group | Tencent | Xiaomi
IronPlanet	US	Industrial	Acquisition	759	Ritchie Bros Auctioneers	Accel | Caterpillar | Kleiner Perkins Caufield & Byers |Volvo

Exits

GCV Analytics tracked 211 exits involving corporate VC investors and companies backed by such investors. This is a record for exits since 2011. The total capital involved in the transactions was estimated at $41.39bn, representing a relatively modest increase over the capital deployed in exits in 2015 – $40.86bn. The US hosted more than half of last year's exits (137), followed by India (15), China (14) and the UK (10). Much like the VC deals, the top corporate-backed exits stood above the $1bn mark. Several of those multibillion-dollar deals were in enterprises from the consumer sector.

Financial services group Fidelity exited US-based lung

cancer treatment developer Stemcentrx in an acquisition by biopharmaceutical company AbbVie valued at up to $9.8bn. Founded in 2011, Stemcentrx emerged from stealth in September 2015 with a pipeline of oncology drugs to kill cancer stem cells. Its lead drug candidate, Rova-T, is in registrational trials for small-cell lung cancer.

Real estate and cinema group Dalian Wanda acquired US-based film studio Legendary Entertainment for $3.5bn, providing exits to various investors including SoftBank. Legendary has produced a string of blockbusters since it was launched in 2004, including Christopher Nolan's Dark Knight trilogy, Man of Steel, 300, the Hangover trilogy and last year's highest grossing film, Jurassic World.

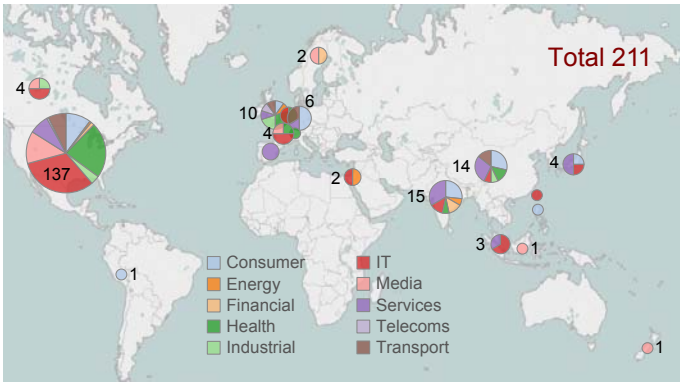
Big box retailer Wal-Mart agreed to acquire Jet.com, a US-based e-commerce company backed Alibaba and Alphabet. Wal-Mart formally announced the transaction, made up of $3bn in cash to be paid in instalments and $300m in stock. Jet launched its e-commerce platform in July 2015, two years after it was founded, offering customers the chance to save money on a wide range of consumer products.

Internet and electronics group LeEco agreed to acquire US-based flat screen television producer Vizio in a $2bn deal, giving exits to contract manufacturers AmTran Technology and Foxconn. Founded in 2002, Vizio develops consumer electronics products like smart television sets and sound bars, which are assembled in China to be sold at relatively low cost.

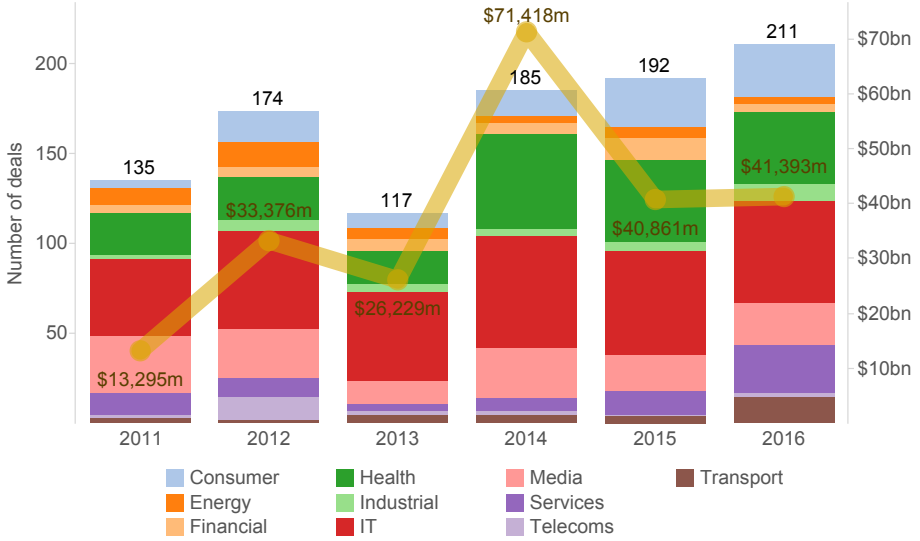
China-headquartered online travel agency Ctrip acquired UK-based online travel search platform Skyscanner in a £1.4bn ($1.74bn) deal, allowing internet company Yahoo Japan to exit. Founded in 2007, Skyscanner operates an online platform allowing users to search for flights, hotels, vehicle rentals and compare prices from a range of providers. It has about 60 million monthly active users and is accessible in over 30 languages.

Automotive manufacturer General Motors purchased Cruise Automation, a US-based driverless vehicle technology developer backed by chipmaker Qualcomm. Founded in 2013, Cruise Automation develops a technology capable of turning any car into a driverless vehicle. Dan Ammann, president of GM, told news publication Business Insider he expected the acquisition of Cruise to enable GM to bring fully autonomous cars to the market.

Global view of exits 2016



Exits 2011-16



Alibaba invested $1bn in Singapore-based e-commerce marketplace Lazada in a deal giving partial exits to investors including e-commerce holding company Rocket Internet and retailer Tesco. Founded in 2012 and incubated by Germany-based Rocket Internet, Lazada operates a diversified e-commerce platform that covers Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

Alibaba also agreed to sell its stake in China-based local listings and group buying platform China Internet Plus for roughly $900m, as part of a $3.3bn round led by Tencent in January. Alibaba was reportedly looking to divest its stake so it could focus on Koubei, its own local services platform.

Industrial auctioneer Ritchie Bros Auctioneers agreed to buy US-based online equipment marketplace IronPlanet for $758.5m, giving exits to industrial machinery manufacturers Caterpillar and Volvo Construction Equipment. IronPlanet operates an online marketplace for industrial machinery and equipment with over 1.5 million registered users around the globe.

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Top 10 funding initiatives 2016

Fund	Country	Sector	Type	Funds raised ($m)	Backers
SoftBank Vision Fund	Japan	IT, media, telecoms, consumer	VC fund	100,000	SoftBank, Saudi Arabian government
Virtual Reality Venture Capital Alliance	China	IT	VC fund	10,000	HTC, Colopl, Legend Holding, Virtual Reality Fund
Baidu Capital	China	IT, consumer, media	CVC unit	3,000	Baidu
Hony Capital Fund	China	Sector-agnostic	VC fund	2,700	Legend Holdings, Hony Capital
Shenzhen VR Investment Fund	China	IT, media, telecoms	VC fund	1,450	HTC, Shenzhen Municipal Government
Norwest Venture Partners Fund XIII	US	IT, services	VC fund	1,200	Wells Fargo (Norwest Venture Partners)
Next47	Germany	IT	VC fund	1,100	Siemens
IDG Capital Fund III	China	Health, energy, media, consumer, telecoms	VC fund	1,000	International Data Group, Breyer Capital
Sapphire Ventures Fund	US/UK	IT, services, consumer	VC fund	1,000	SAP [Sapphire Ventures]
Oil and Gas Climate Initiative	US	Energy	VC fund	1,000	BP, Total, Saudi Aramco, Statoil, Royal Dutch Shell, ENI, Reliance Industries, Repsol, Pemex, China National Petroleum Corporation

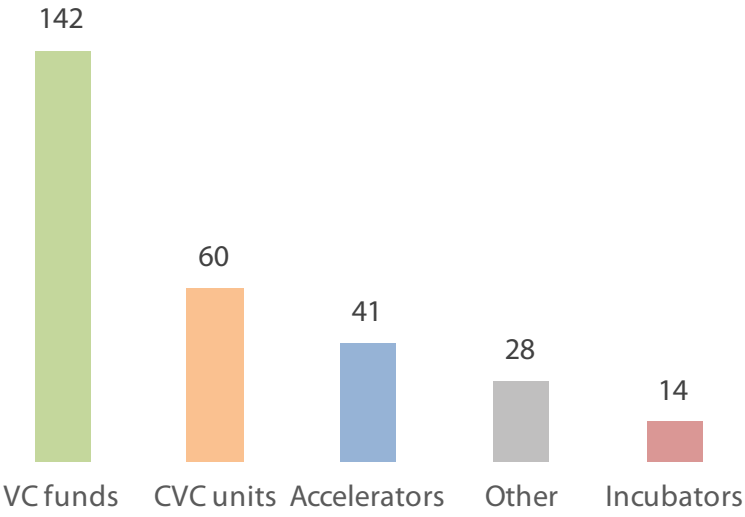
Funding initiatives

GCV Analytics tracked 286 funding initiatives with corporate backing in 2016, whose estimated total worth was over $134bn globally. These include 142 corporate-backed VC funds, 60 new corporate venturing units, 41 accelerators, 14 incubators and 28 other initiatives. One is notable – the SoftBank Vision Fund ($100bn) – accounts for the vast bulk of the estimated total funding.

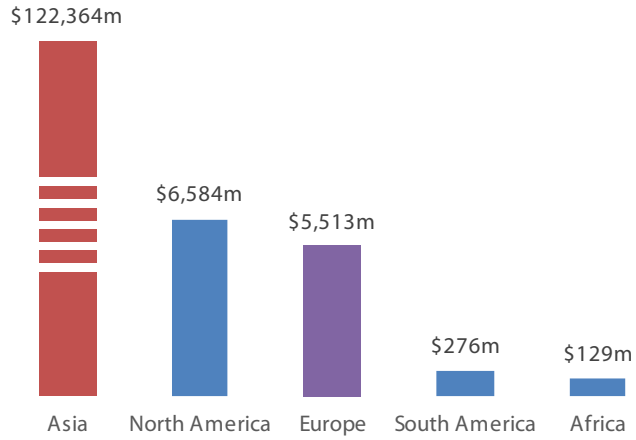
The funding raised in 2016 was not evenly distributed geographically. On a country-by-country basis, the US hosted the largest number of such initiatives (76), clearly outnumbering China (31), India (20) and Japan (19). However, in terms of the total value of funds on regional basis, Asia clearly champions the world with the behemoth $122bn raised, followed by North America with $6.58bn and Europe with $5.51bn. It is worth noting that even without the unusually large SoftBank fund, which will actually be based in the UK, Asia would still have been far ahead of North America and Europe with $22.36bn of new funding in which corporate venturers participated.

The most significant outlier in 2016 was the SoftBank Vision Fund. The vehicle was launched when Japan-headquartered telecoms and internet group SoftBank announced it would commit a total of $25bn to the fund and Saudi Arabia, through its state-owned Public Investment Fund, would provide $45bn. There were also talks about "large global investors" to add capital to bring it to $100bn. Later, Masayoshi Son, chief executive of SoftBank, announced that the $100bn fund was set to be oversubscribed, according to Bloomberg.

Funding initiatives by type 2016



Total funding raised by region 2016



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The SoftBank Vision Fund will look to expand SoftBank's growth through investments in technology companies that could form alliances with its group companies.

Smartphone maker HTC launched the Virtual Reality Venture Capital Alliance (VRVCA) in partnership with 27 other VR investors. VRVCA is to invest in VR technology and content startups, as well as such working on augmented and mixed reality. The VRVCA partners have a total of $10bn of deployable capital. Alvin Wang Graylin, president of VR at HTC China, was appointed president of the coalition. Other VRVCA backers include Colopl, Gumi, Legend Capital, the corporate venturing arm of Legend Holdings, as well as institutional investors such as venture capital firms Sequoia Capital, GGV Capital, Qiming Venture Partners, Matrix Partners and Redpoint Ventures.

HTC also agreed to set up a RMB10bn ($1.45bn) VR investment fund in partnership with China's Shenzhen municipal government. Shenzhen VR Investment Fund will look to secure financial support from Chinese and international partners.

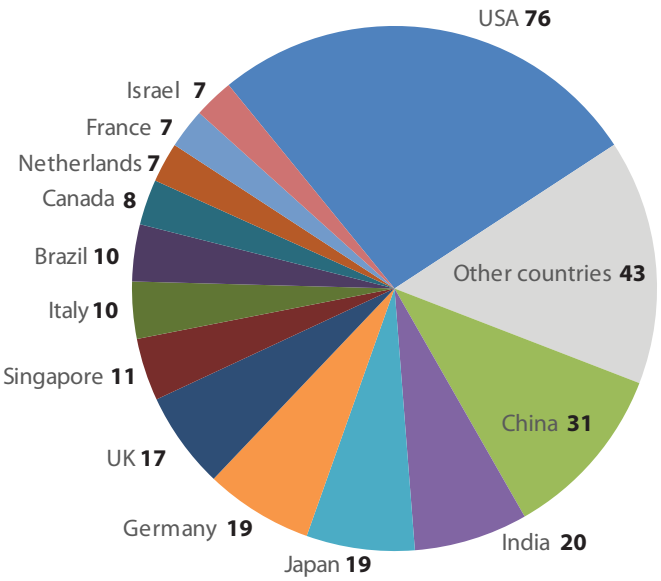
China-based internet company Baidu set up $3bn investment vehicle Baidu Capital. The unit is to focus on mid to late-stage startups in the internet sector, making individual commitments between $50m and $100m in multiple currencies.

Hony Capital, a private equity firm launched by China-based conglomerate Legend Holdings, closed a $2.7bn dollar-renminbi fund, according to Bloomberg. About 70% of the fund is in dollars and the rest in renminbi. The dual currency approach is meant to avoid conflict between the firm's dollar and yuan investors, who traditionally would have seen their capital invested separately. Founded and sponsored by Legend in 2003, Hony focuses on Chinese investments and targets areas such as consumer businesses, healthcare and pharmaceuticals as well as industrial equipment producers.

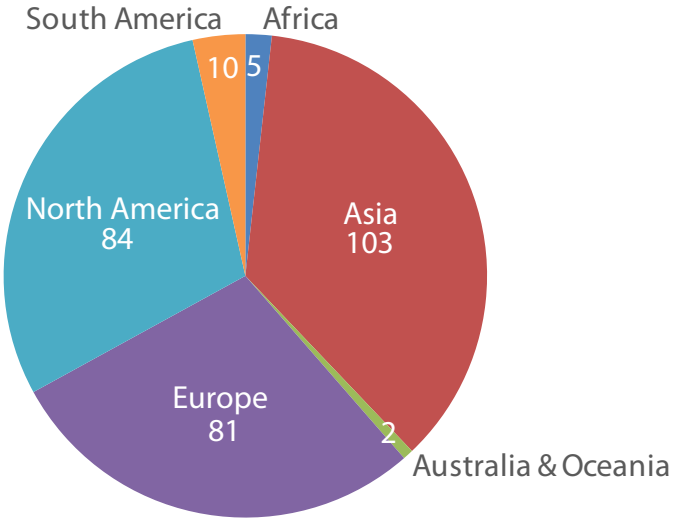
Norwest Venture Partners (NVP), the venture firm backed by Wells Fargo, closed a $1.2bn fund after an 18-month period during which it had recorded 22 exits. This is NVP's 13th fund. Originally founded in 1961, the firm invests primarily in the US, with some deals in India and Israel, targeting enterprises from seed to late stage. The size of the fund is the same as the previous two, raised in 2010 and 2014.

Germany-headquartered industrial product manufacturer Siemens set up a new corporate venturing unit to invest €1bn ($1.1bn) in disruptive technology. The vehicle, Next47

Funding initiatives by country 2016



Funding initiatives by region 2016



– a reference to 1847, the year Siemens was founded – is to invest in innovative technology in sectors relevant to Siemens, such as decentralised electrification, artificial intelligence, autonomous machines, networked mobility and blockchain-equipped data transfer technology. The unit will be geographically agnostic, operating from offices in Berkeley, California, as well as Shanghai and Munich.

IDG Capital Partners, the China-headquartered venture capital affiliate of IT media firm International Data Group (IDG), closed its latest fund at $1bn. IDG Capital Fund III was raised in partnership with US-based VC firm Breyer Capital and is to fund healthcare, energy, consumer products and

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> Logistics, food and grocery delivery, other delivery services
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technology, media and telecoms companies based in China or seeking to enter the Chinese market.

Venture capital firm Sapphire Ventures has closed $1bn in new capital, with the money coming from its sole limited partner, Germany-based enterprise software provider SAP. Founded as SAP Ventures by SAP in 1996, the firm spun out in 2011 and changed its name to Sapphire in late 2014. Sapphire targets enterprise and consumer technology developers, investing in innovation throughout Europe, the US and Israel.

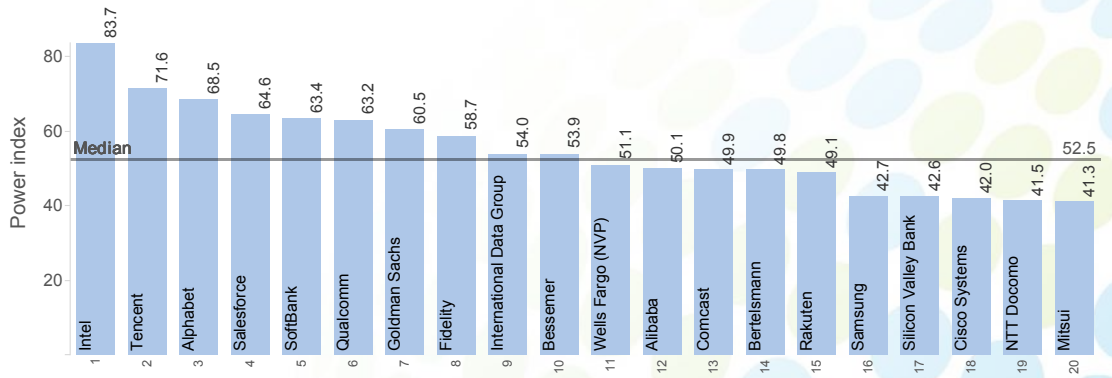
Ten oil and gas companies announced plans to establish a $1bn fund to invest in research and startups focused on low-carbon technologies.

The Oil and Gas Climate Initiative won the backing of 10 oil companies – BP, China National Petroleum Corporation, Eni, Pemex, Reliance Industries, Repsol, Royal Dutch Shell, Saudi Aramco, Statoil and Total. Combined, these 10 companies represent a fifth of the world's oil and gas production. Each of the 10 is to invest $100m in the fund.

Co-investor analysis 2011-16

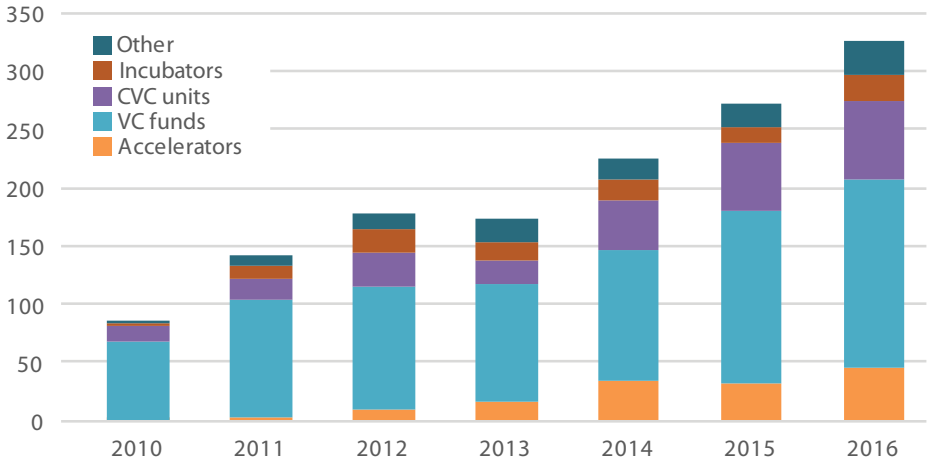
	Intel	Alphabet	Qualcomm	International Data Group	General Electric	Johnson & Johnson	SoftBank	Wells Fargo (NVP)	Angel Investors	Kleiner Perkins Caufield & Byers	Sequoia Capital	New Enterprise Associates
Intel		7	9	3	5			10	16	15	9	6
Alphabet	7		9	6	7	2	5	8	49	53	18	14
Qualcomm	9	9		5	4		6	5	14	4	14	10
International Data Group	3	6	5					6	16		16	4
General Electric	5	7	4				1	3	2	7	3	1
Johnson & Johnson		2							3	5		5
SoftBank		5	6		1			1	4		5	5
Wells Fargo (NVP)	10	8	5	6	3		1		5	3	7	5
Fidelity	4	8	5	2	2		1	2	5	1	4	10
Salesforce	2	4			1			1	7	7	5	7
Tencent		3	1	2			3	1	5	1	11	
Novartis			1			7			2	3		5

Power rankings

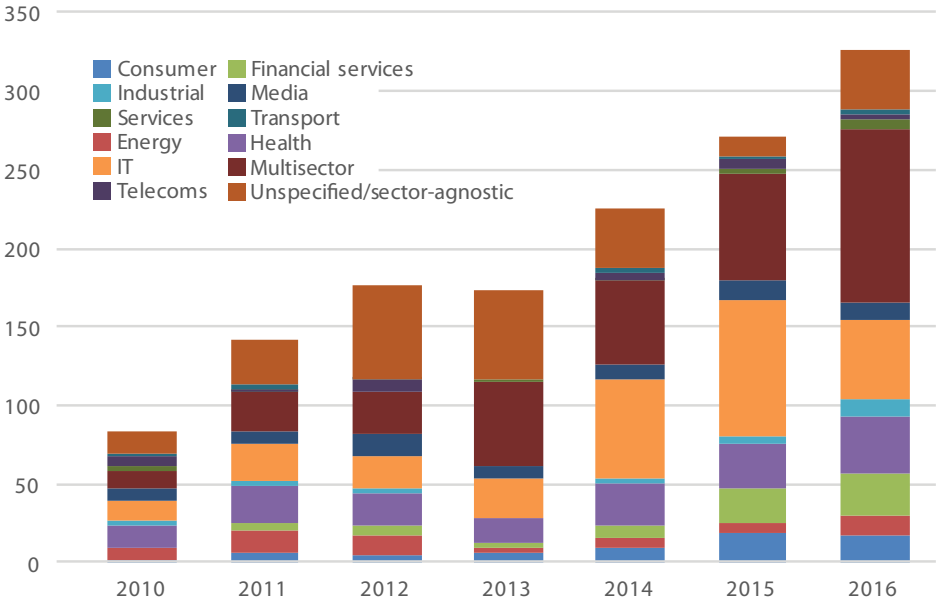


Global Corporate Venturing (GCV) tracked a record number of corporate-backed funding initiatives last year. With more than 300 launches, including about 60 corporate venturing units, last year saw the highest level since our trade paper was launched in 2010. Corporations are also increasingly important as investors in third-party funds, accelerators and incubators as their involvement in the entrepreneurial ecosystem matures and expands. In October, GCV partnered US trade body the National Venture Capital Association on the Shift conference in New York to help bring corporations together with independent VCs to develop future partnerships.

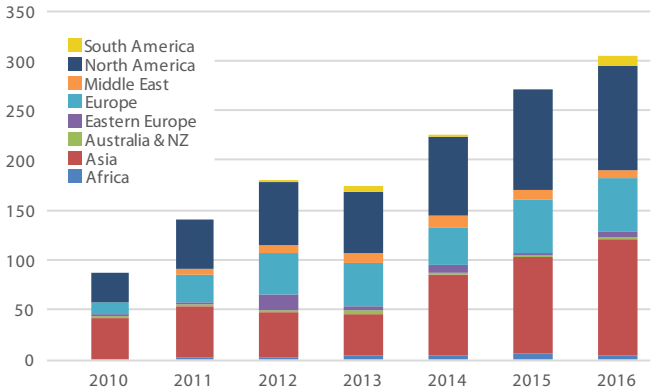
Corporate-backed funding initiatives 2010-16



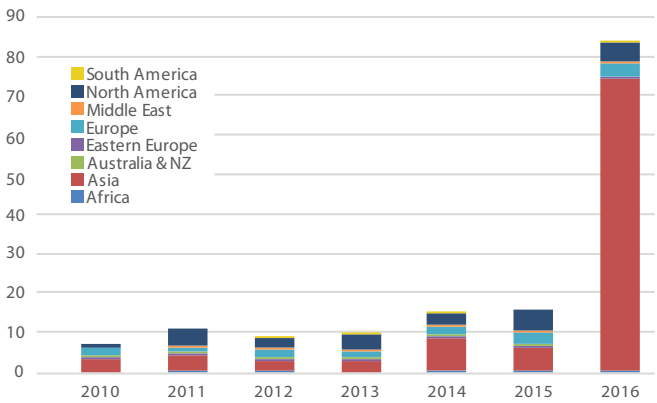
Funding initiatives by target sector 2010-16



Funding initiatives by region 2010-16



Value of funds raised by region 2010-16 (£bn)



Graphs on this page courtesy of Salesforce

THELANDER 2016 CVC COMPENSATION REPORT

Heidi Mason, Bell Mason Group, and Jody Thelander, J Thelander Consulting

The Thelander 2016 CVC Compensation Survey, part of the larger 2016 Thelander-PitchBook Investment Firm Compensation Report, provides data from more than 175 corporate venturing executives representing 125 leading programmes. This fourth annual survey was conducted by compensation advisers J Thelander Consulting in partnership with data provider PitchBook, Global Corporate Venturing and with strategic guidance from corporate venturing and innovation experts Bell Mason Group (BMG).

CVC industry context and trends

Expansion and growth: In recent years, there has been tremendous acceleration in the number of companies launching corporate venture capital funds and programs. According to CVC industry tracker and media company Global Corporate Venturing, today there are more than 1,500 corporations with corporate venture programs worldwide, more than half created since 2010. Virtually every industry sector has CVC programmes, including more than 50% of the Fortune 500. And the investment and M&A deal tracker PitchBook shows data that corporates and CVCs are playing an increasingly important role in the VC investment ecosystem, accounting for more than 40% of nearly $80bn in global VC deals in 2015. With innovation and competitive urgency on the minds of C-suites and boards across the globe, CVC has become a mainstream tool in the corporate arsenal to address these challenges.

CVC practice as end-to-end implementation: CVC programmes differ from VC practices in that for the CVC, strategic value and potential commercial impact are as important as financial return on investment, if not more so. To this end, CVCs need to be able effectively to leverage parent companies' resources, established businesses and infrastructure. For the large numbers of CVC programs formed since 2010, execution is increasingly focused on where and how CVC portfolio companies land to accelerate delivery of impact to the parent company, its present and future businesses. This may include corporate access to new venture technology innovations, new business models and adjacent businesses and applications, as well as early positions and insights in new marketplaces. Key success factors for making

Corporate venturing unit leader – senior corporate level executive

	No. of co's reporting	Average	Minimum	25th %ile	Median	75th %ile	Maximum
2015-2016 base	40	$366,693	$220,000	$295,000	$337,500	$400,000	$900,000
Bonus for performance 2015	37	$184,312	$26,000	$80,000	$150,000	$250,000	$750,000
2015 bonus % of base $	37	50.1%	8.7%	26.7%	41.8%	64.4%	187.5%
Total cash 2015-2016	40	$537,181	$280,000	$387,500	$495,417	$641,000	$1,500,000
Projected 2016 bonus	35	$217,052	$30,000	$100,000	$150,000	$225,000	$1,067,000
2016 projected bonus % of base $	35	57.8%	10.0%	32.3%	46.7%	60.0%	266.8%
% interest carried	6	12.00%	2.00%	8.50%	11.00%	14.25%	25.00%

Source: J Thelander Consulting

these programs successful – for corporate parents and portfolio companies alike – are agile and institutionalised operations and experienced professional teams that uniquely blend corporate strategy, business development, VC and entrepreneurial skillsets.

"Professionalisation" of CVC: Over the past four years, BMG and Thelander have introduced, refined, and continue to track the standardisation of CVC job descriptions and compensation structures – and now CVC career paths. This is a critical step in the evolution of CVC as a mainstream, legitimate profession in its own right, rather than a temporary revolving door or resume brightener, a path to corporate advancement. There is also increasing recognition that high-performance CVC teams need to be incentivised to stay together over time – a collection of star individuals is not sufficient to achieve ultimate CVC program goals. The quality of CVC program performance increases with the level of experience and longevity of its team, working as an increasingly efficient and powerful engine.

Building stable, long-term, professional CVC teams creates compensation and human resources (HR) challenges for corporate parents who are increasingly forced to compete externally for the right mix of talent in a pool consisting of talented internal resources as well as CVCs, VCs, private company and private equity personnel. There is inevitable friction in balancing CVC compensation and career path opportunities between established corporate HR bands and external venture and VC risk-reward structures.

2016 survey findings and implications

With this year's CVC survey results and the evolution of professionalism of the practice it implies, key year four findings and implications include:

- Consistency in standards and compensation for high-performance team, individual job descriptions and performance criteria: There is increasing recognition that high-performance CVC teams integrate specialised, blended skillsets and that retention is as important as recruitment. In addition to the roles defined in the 2016 survey, we are beginning to see and will track new or expanded CVC roles that focus on optimising strategic landing spots – for example, a senior role that incorporates business development skills for innovation partnering and commercial piloting. Overall CVC compensation has risen slightly compared with data from previous years of the Thelander CVC compensation studies. The 2016 survey shows that CVC unit leaders earn, on average, $337,500 a year plus $150,000 in cash bonuses; with a maximum exceeding $1.5m. The survey also includes minimum, maximum and 25th and 75th percentile data for the unit leader position as well as the following roles – senior investment professional, portfolio manager or CVC unit chief finance officer (CFO), investment or program manager, analyst or associate and vice-president innovation – not to be confused with the chief innovation or strategy officer, to whom the CVC group may report, and a role this survey does not yet track.
- Talent pool cross-pollination: 80% of responding companies acknowledge going outside to recruit CVC unit leaders and senior investment professionals, the vast majority from VC, private equity (PE), corporate venturing and investment banks. At the same time, 40% report having lost a senior professional or key recruit to these same organisations. With CVCs participating in nearly 20% of venture deals, talent in the investment ecosystem is increasingly sitting side by side, creating an increasingly challenging environment for CVC individual recruiting and team retention – as well as a deeper pool of skillsets and experience. This requires corporates to understand normalisation relative CVC, VC, PE and private company executive teams' compensation and career paths
- CVC bonus structures are still the primary basis for competitiveness and strategic alignment of incentives with CVC performance goals– pay for performance: For the vast majority, the bonus is the preferred mechanism for competitively rewarding individual and CVC team performance. BMG and Thelander note three CVC bonus elements – corporate, individual and team.

Recently team and portfolio performance against charter – strategic and financial metrics – is factoring more prevalently in overall bonus structures. About 70% of 2016 survey respondent companies, compared with 54% in 2015, reported CVC performance as a key element in determining bonus levels. This introduces the notion of CVC team-specific bonus pools – dedicated cash or vesting restricted stock units (RSUs) – as another potentially significant retention tool.

Given that the team or portfolio performance element is crucial in competitive pay-for-performance structures, future Thelander bonus surveys will further explore the structure and use of these incentives.

Broader CVC mandate

As CVC has become a more mainstream strategic innovation activity, BMG and Thelander note a broader range of mandates aimed at maximising unit impact. Although 96% of survey participant units make minority equity investments, 11% also make majority equity investments more consistent with growth PE strategies, and 22% are also involved in innovation M&A activity.

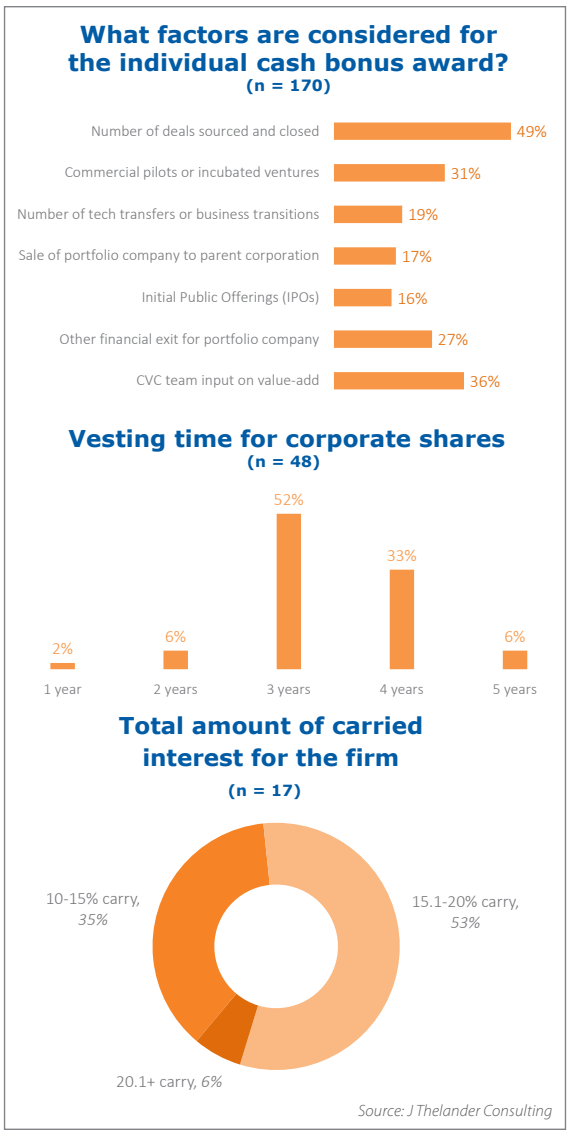
Furthermore, 35% have commercial piloting or incubation responsibilities that actively link CVC investments and parent business activities with more senior individuals in these business development roles. CVC compensation approaches will need to continue to evolve, in keeping with the expansion of the units' mandates and individual CVC professional responsibilities.

Incentives for success

In addition to recruiting and retention, compensation structure can also signal the focus and intent of corporate executive management. Do CEOs and CFOs still view corporate venturing as an experiment or an opportunity to temporarily expose promising personnel to venture capital and innovative startups for career development? Or is corporate venture now a sufficiently critical priority to create the human resources and compensation policies required to effectively recruit and retain a team of specialised CVC personnel?

About 76% of respondents to the 2016 survey said their current title and compensation structure failed to compensate them accurately and appropriately as a CVC professional. This outcome should not come as a surprise – in 2016, less than a quarter of corporations looked to external benchmarks to determine comparables for CVC compensation and career path planning, while 49% continue to rely on existing internal corporate and HR benchmarks and banding as the primary means of framing the approach to CVC professionals' compensation, recruitment and retention.

However, the 2016 survey shows increasing efforts are being made to define and reward individual and unit performance beyond deal sourcing, deal closing and traditional financial metrics, such as internal rate of return and exits. Close to three-quarters of respondents noted that their individual bonus structures now included some level of strategic impact metric to capture value-add to the parent corporation, for example, business unit commercial pilots, tech transfers, business unit or parent input on value-add.



Although the performance of the corporate parent continues to be an important factor in determining annual bonus, in 2016 more than half of companies reported individual and CVC team performance to be equally important factors, a change from previous years where corporate performance dominated.

About 40% of survey respondents said they were granted options or shares in their corporate parent– 80% in the form of RSUs – in addition to the 97% who received cash bonuses. BMG sees the use of RSUs as a primary means of rewarding individuals and teams, at least indirectly, with a structure that more closely emulates the risk-reward dynamic for individual and teams in the external venture world.

Only 11% of respondents reported a carried interest payment program to calculate shadow or phantom

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carry as a component of CVC compensation.

Financial VCs typically include carried interest – a share of investment return – as a part of senior level compensation packages. However, CVCs and corporate parents have historically experienced significant conflict in trying to arrange for carried interest in their portfolios, as this generally creates untenable organisational, operational or cultural friction within the corporate environment.

Investment professional $500m-$999m AUM

	No. of co's reporting	Average	Minimum	25th %ile	Median	75th %ile	Maximum
2016 base	18	$719,190	$300,000	$409,500	$600,000	$975,000	$1,500,000
Bonus for performance 2015 $	7	$397,214	$60,000	$134,250	$177,000	$637,500	$1,000,000
2016 total cash compensation	18	$873,662	$300,000	$568,125	$808,333	$1,251,313	$1,500,000
2016 projected bonus	5	$616,000	$150,000	$180,000	$500,000	$750,000	$1,500,000
% carried interest	18	17.14%	5.00%	13.50%	17.50%	22.00%	29.00%

Source: J Thelander Consulting

Sisyphus syndrome

A major challenge for CVC units is the frequency of senior management rotations, affecting executive sponsors for the programs. About 41% of respondents said they had experienced an executive sponsor change in their parent company in the previous three years.

BMG notes that these typical turnovers in the senior ranks of the corporation often trigger CVC program reviews, especially if there are changes in direct reporting structures. This phenomenon may prove additionally challenging for CVC programs and team retention, as change in leadership may slow the unit's external investment momentum and progress against long-term goals, as well as require a temporary shift of time and attention for reframing and educating new leadership on program value and results.

One corporate venture veteran of more than 20 years described this as similar to the myth of Sisyphus having to roll a boulder uphill every day only to see it fall back every night. Of the companies which responded to the survey, 46% had been in place less than three years and well over half for less than five years. About 38% had been in business more than seven years.

This underlines the rapid growth in the industry over the past three years and has led to many units recruiting experienced CVC professionals from other companies, or individuals with a financial VC, PE or investment banking background to complement their internal executives.

Sources of competition for CVC investment talent

Of the respondents to the survey, 60% said more than half their investment professional team were sourced externally, with 58% recruited from VC or PE firms and investment banks and another 28% from other CVCs. At the same time 40% of respondents reported losing a senior professional or key recruit in the last year, nearly two-thirds going to VC, PE or CVC teams.

In order to compete effectively for talent, corporations must have a better understanding of and access to data relative to compensation benchmarks for the entire innovation and investment ecosystem, from which these specialised CVC professionals are recruited, hired and retained.

The internal-sourced CVC team members were seen to provide internal access and networks; with the outside hires to bring CVC deal-making and market domain expertise.

The most common CVC unit structure (42%) is to draw money from the parent company each year with a dedicated team and operating budget. Nearly 40% operate either as a completely separate entity (16%) or through a limited liability company or off the balance sheet with an annual investment budget (24%). Only 19% rely on obtaining investment funds from the parent company on an ad hoc, case-by-case basis.

To purchase the 2016 Thelander-PitchBook Investment Firm Compensation Report (CVC, VC, PE) visit jthelander.com/compensation-data/subscriptions/

Insights

Strategies

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Claudia Fan Munce,
GCV Leadership Society Chairperson and
former Head of IBM Venture Captial

GCV Leadership Society and CVC Trade Body missions:

The GCV Leadership Society is for corporate venturing leaders and aims to be the pre-eminent provider of data, information, events and other services for the global corporate venturing community. The Society helps develop the corporate venturing leaders of the future.

A separate CVC Trade Body, chaired and majority governed by practicing corporate venturers, has also been created to help the industry communicate its work to third parties, such as entrepreneurs, VCs, corporate management and through regional trade bodies and local networks that provide government lobbying.

	CVC Trade Body (Organisation/ Individual) $499 per year	**Premium*** (Company) $10,000 per year	**Luminary** (Company) $50,000 for 2 years
Right to join and use the *'CVC Trade Body'* Name	✓	✓	✓
Get the Weekly Community Newsletter	✓	✓	✓
Entry in the Member Directory	✓	✓	✓
Pro Bono - Bridging communications to third parties	✓	✓	✓
Enhanced Company Profile in the Directory		✓	✓
Free Ticket to either the annual Summit or Symposium		TWO	THREE
Executive Advisory Role - act as GCV Leadership Society Ambassador for a three-year period			✓
GCV Subscription** for up to 1 user for 12 months (add an extra user for $5,000 more) - access the monthly magazine, data searches and special reports	10% Discount	FREE	FREE
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Branding on Leadership Society materials as Luminary members			✓
NDA Club			✓

*GCV Subscribers can upgrade for a limited time. Subscription fee already paid will be subtracted from the amount due on a pro-rated basis.
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CVC Trade Body

$499 per year

This US-based non-profit organisation is governed by the industry leaders in order to communicate with third parties, such as entrepreneurs, VCs and corporate managers. It is separate to Global Corporate Venturing (GCV) and its UK-based corporate parent, Mawsonia, although it can contract services from GCV and/or other service providers, such as data, to help in its outreach efforts. Subscribers to GCV will automatically be enrolled in the CVC Trade Body with $499 rebated to the non-profit as GCV's contribution to the industry. However, people can join the trade body separately to taking GCV's Leadership Society services.

GCV Industry Partner (Firm) or other industry professional (e.g. Academic, Government)

$10,000 per year*

* Non-corporate venturers will have more limited access to the CVC Trade Body's services unless authorised by its board.

Why Join?

- Support your industry
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- Raise your company's profile to increase co-investment and deal-flow opportunities
- Increase your personal profile for your next career move
- Join sub-committees to move the industry forward in areas such as deal flow, investment models, partnership approaches, innovation excellence and intellectual property

Committee members include:

Claudia Fan Munce
NEA

Wendell Brooks
Intel Capital

Nagraj Kashyap
Microsoft Ventures

Dominique Mégret
Swisscom Ventures

Bill Taranto
Merck

Sue Siegel
GE Ventures

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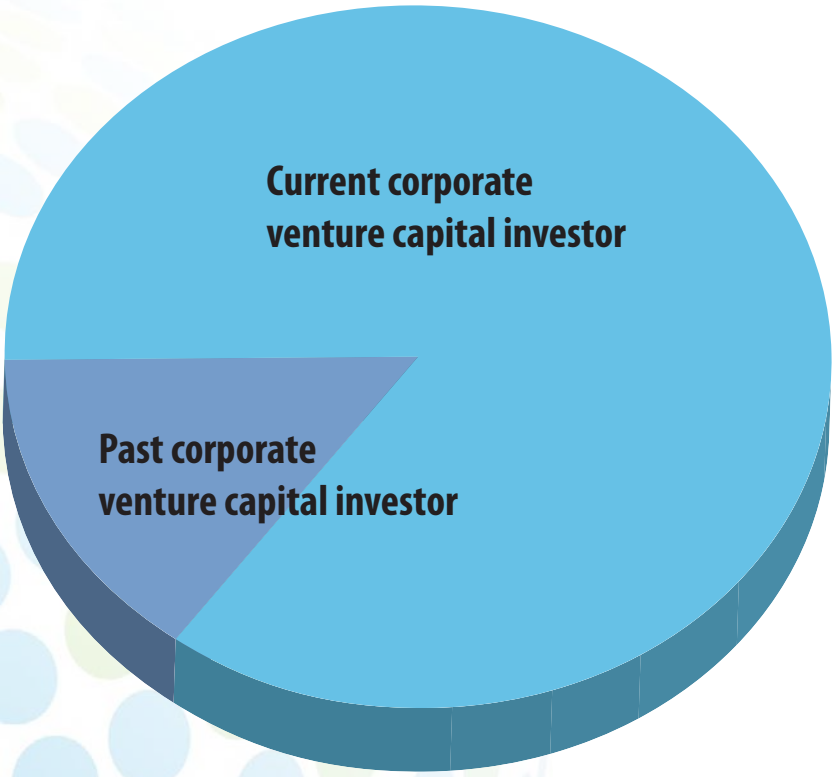
THE GLOBAL CORPORATE VENTURING SURVEY 2017

Thank you to the 275 respondents for helping Global Corporate Venturing and our academic partners, Paul Gompers, Harvard University and National Bureau of Economic Research, Will Gornall, University of British Columbia, Steven Kaplan, University of Chicago Booth School of Business and National Bureau of Economic Research, and Ilya Strebulaev, Stanford University Graduate School of Business and National Bureau of Economic Research, learn more about corporate venture capital.

We wanted to learn best practices in corporate venture capital (CVC), market corporate venture capital to policy makers and the public, and guide academic research. This survey, carried out over six weeks at the end of October, was a follow-up to the academics' largest-yet survey of institutional venture capital earlier in the year and so allows an unprecedented view across two parts of the wider innovation capital ecosystem.

James Mawson, editor-in-chief

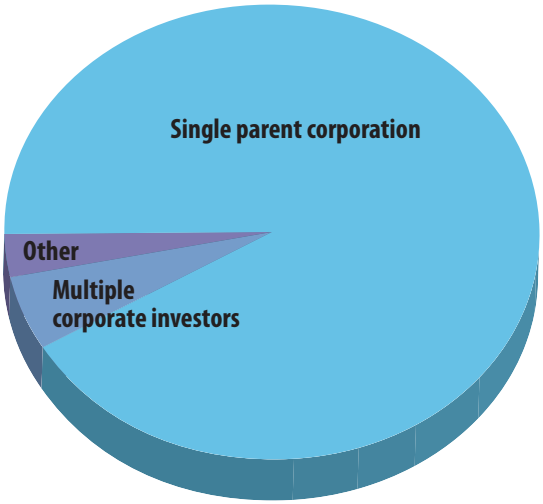
Respondents to our survey



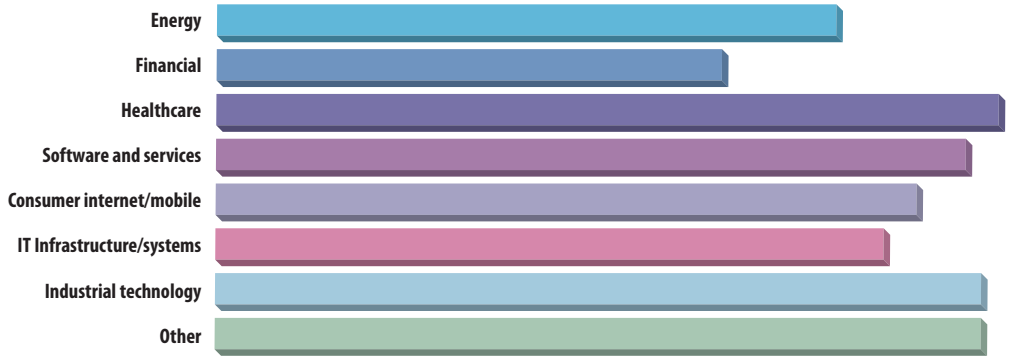
Of the 235 active CVCs that responded, the majority had just one parent and were broadly spread by sector. The CVCs said they often had multiple goals, such as developing new business, supporting existing businesses as well as often having financial objectives. For those with multiple goals, about half said developing new business was their most important objective, followed by those tasked with supporting existing businesses.

However, a quarter said financial returns were their priority, which fitted with the broad numbers who invested off the balance sheet, such as through dedicated funds where it can be easier to track returns and attribute performance fees.

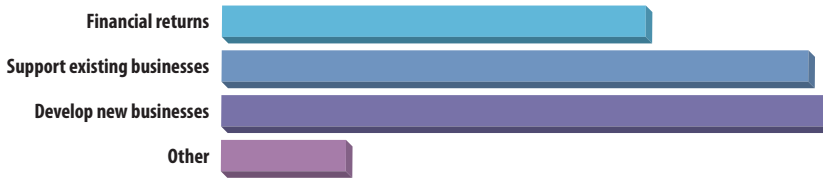
Do you have a parent corporation to which you are closely tied or multiple corporate investors?



Single corporate parent: In what industries is your parent corporation involved?

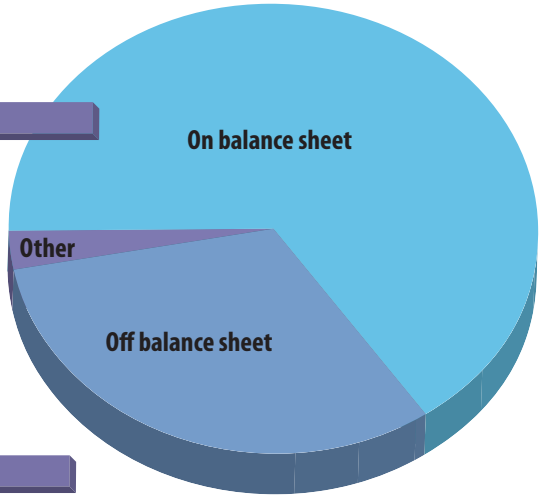


Single corporate parent: What are the main objectives of your company's venture investments?



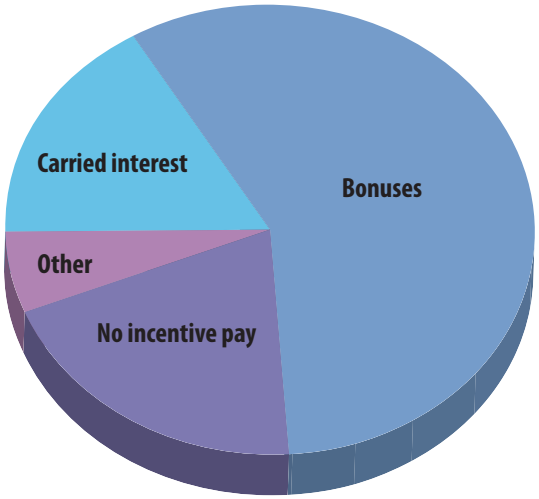
Multiple choice question

Single corporate parent: Is your unit run on or off balance sheet?



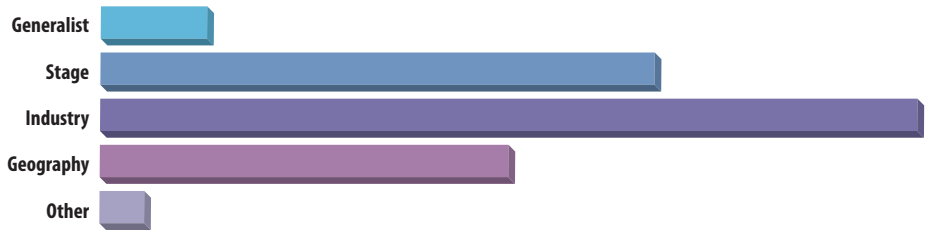
Single corporate parent: What is the most important objective of your company's venture investments?

How does your unit reward the performance of investment executives?

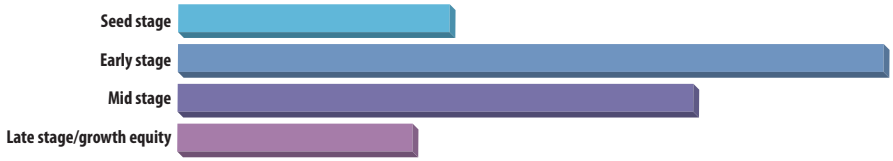


What goals inform compensation decisions?

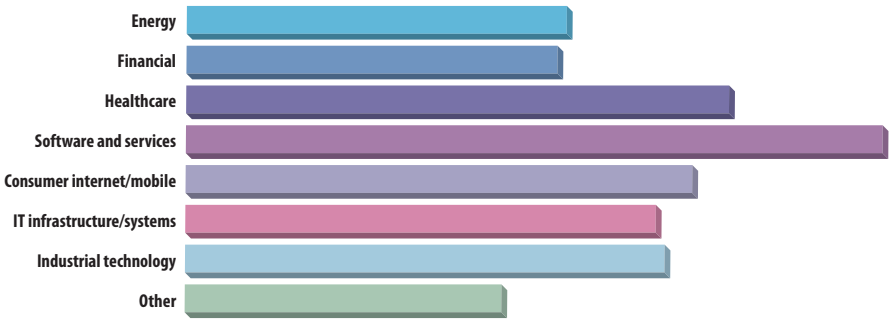
Do you target a particular stage, industry or geography?



Stage specialists: What stage do you target for your first investment?



Industry specialists: What industries do you target?



But fewer than a quarter of CVCs received no incentives for their performance, with those that did receive such bonuses gaining them primarily for having at least some strategic delivery.

The majority of CVCs, regardless of strategic or financial goals, focused on specific industries to develop their investing advantages. And rather than target later-stage deals to try and show synergies with the parent, the majority of those focused on development at the portfolio company said they were looking at a seed or early-stage.

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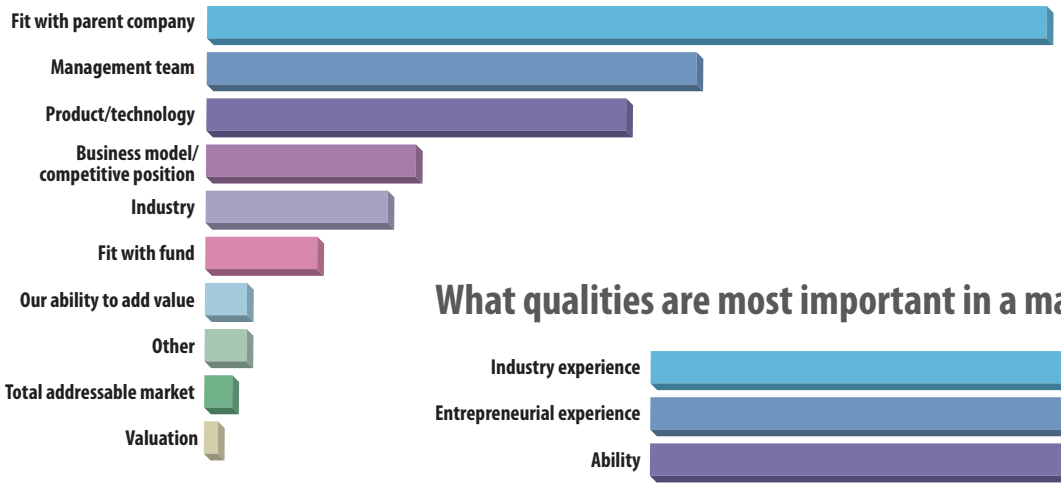
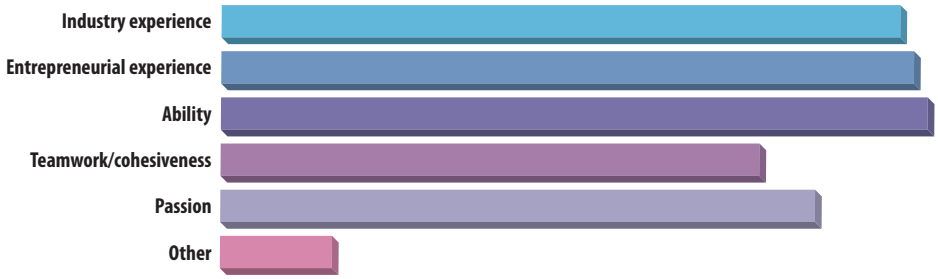
What is the most important factor when deciding whether to invest?



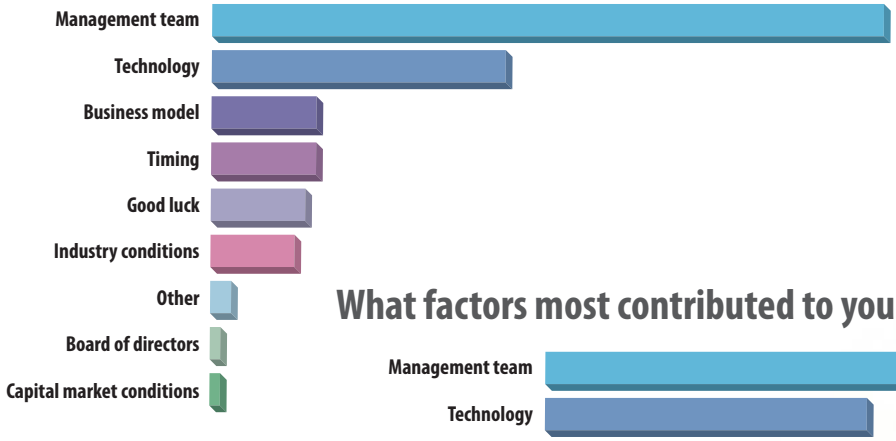
What qualities are most important in a management team?



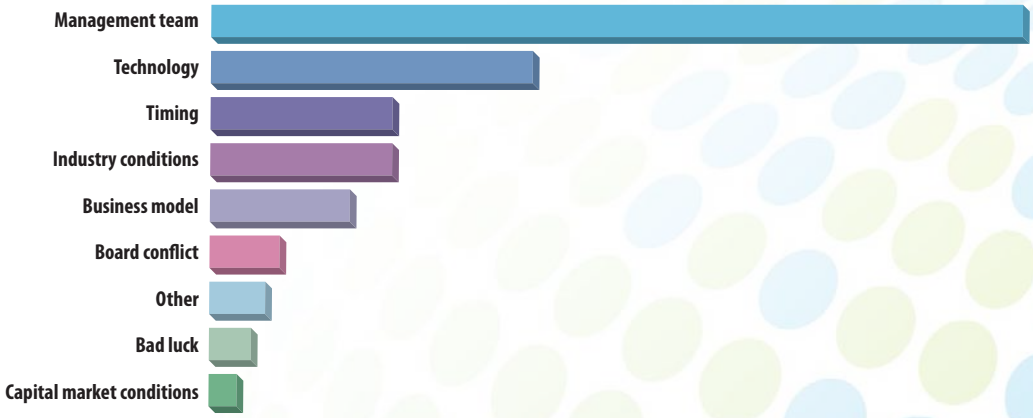
Fit with parent company was still the most important factor for about a third of CVCs when deciding whether to invest, even above management team. When judging managers, however, their perceived ability, entrepreneurial experience and industry experience were the top criteria.

Management team was the primary characteristic behind both success and failure, above technology or business.

What factors most contributed to your investment successes?



What factors most contributed to your investment failures?



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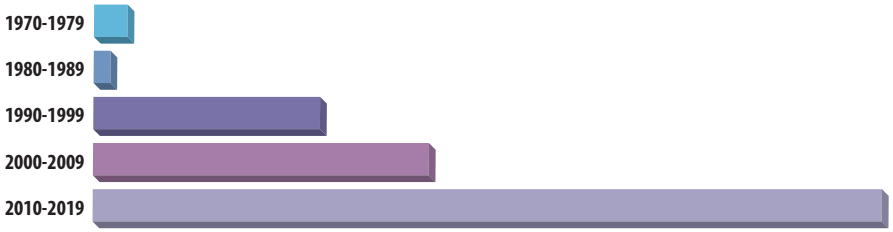
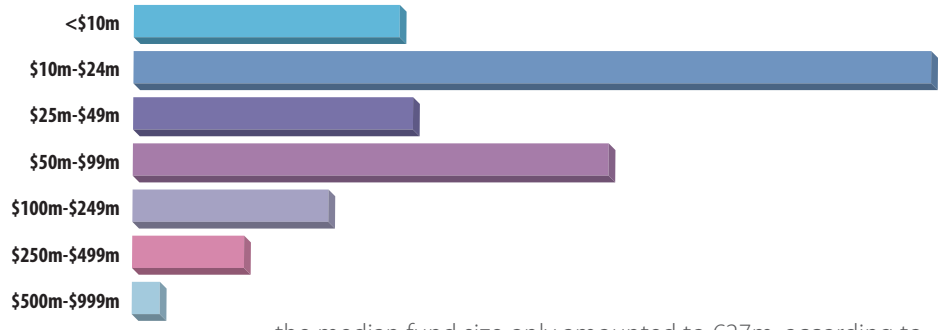
When was your corporate venture capital unit established?



The academics said the average CVC unit was set up in 2007, reflecting both the largest number formed since 2010 (94) as well as the handful tracing their history back before 1990.

However, the size and scale of corporate venturing commitments has dwarfed historical allocations to the average VC fund given companies are trying to compete with the top tier. Twenty-four CVCs are investing at least $100m per year, which would put this subset on average investing nearly $7bn per year at the mid-point of their ranges and the equivalent of a $1.5bn fund size invested over a five-year period.

How much does your unit aim to invest in a normal year?

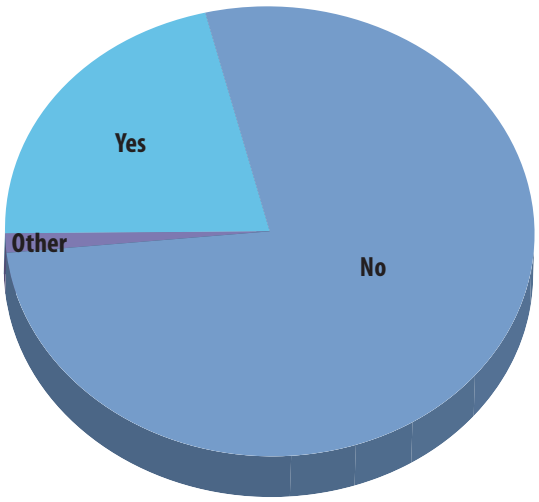


By comparison, from 1995 to 2008, the average US venture capital fund size increased 3.5 times from around $100m to $350m, according to Daniel Blomquist, a principal at VC firm Creandum in a paper presented last year to Kauffman Fellows. This was nearly four times the average size of European VC funds – at final closing – of €61m in the 2007 to 2012 period ($80.5m at 2012 exchange rates) and when the median fund size only amounted to €27m, according to trade body Invest Europe.

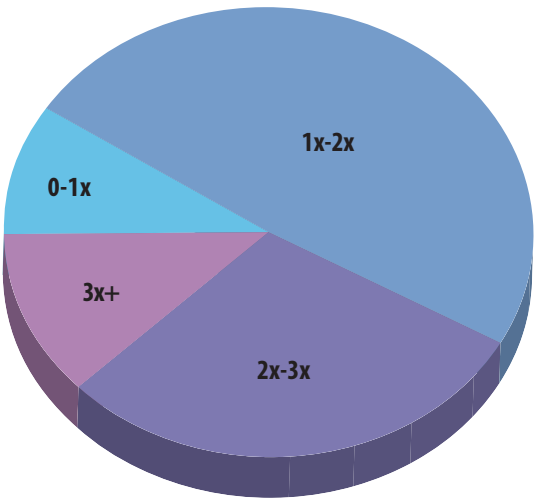
Put another way, almost every CVC has been investing more per year than an average European VC fund closed in 2012 and investing over a standard five-year period.

And they have been successful in finding the best deals, with 31 CVCs saying they were currently an investor in a so-called unicorn – a company valued at more than $1bn – and more than three-quarters delivering at least 10% annual rates of return per year and at least their money back. However,

Do you currently invest in any unicorns – companies valued over $1bn?



What multiple of invested capital has your unit generated since inception, including unrealised investments?



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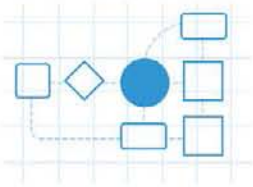

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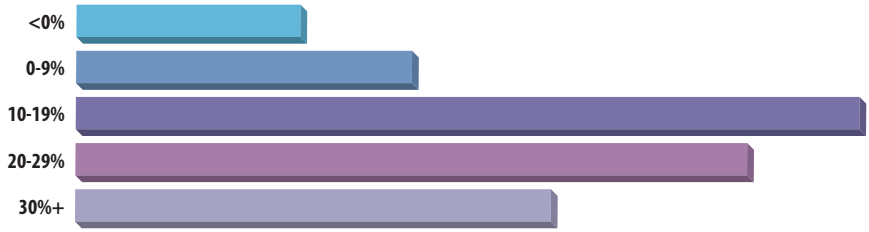
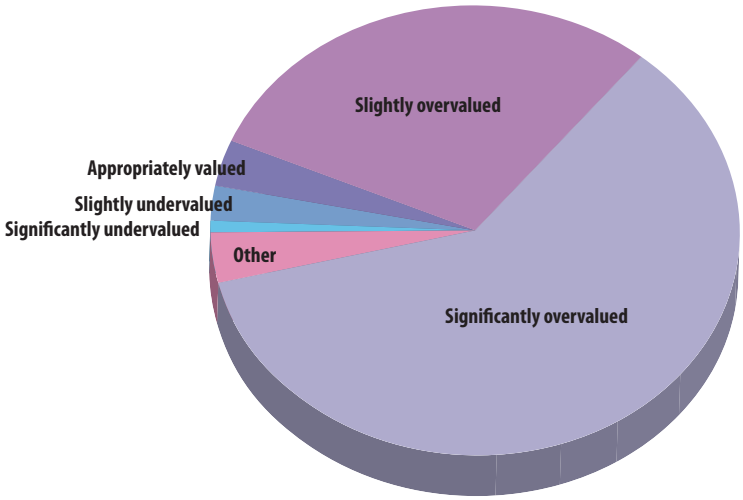
What is the internal rate of return on your past investments, including those unrealised?



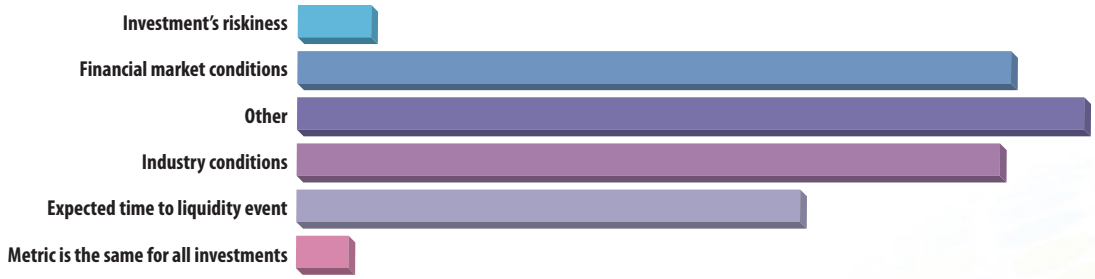
these figures included unrealised investments and almost all CVCs said unicorns were overvalued, which could affect these returns, and fewer than half said they hit the median 20% internal rate of return IRR. However, most groups adjusted their target IRR depending on perceived other factors.

Allied to the experience of CVCs, the amount of capital deployed by groups has been significant, with 15 investing at least $1bn since their formation. This is almost the same number as top-tier VCs, given US trade body the National Venture Capital Association (NVCA) estimates 60% of money now raised in funds was being secured by the top 16 firms.

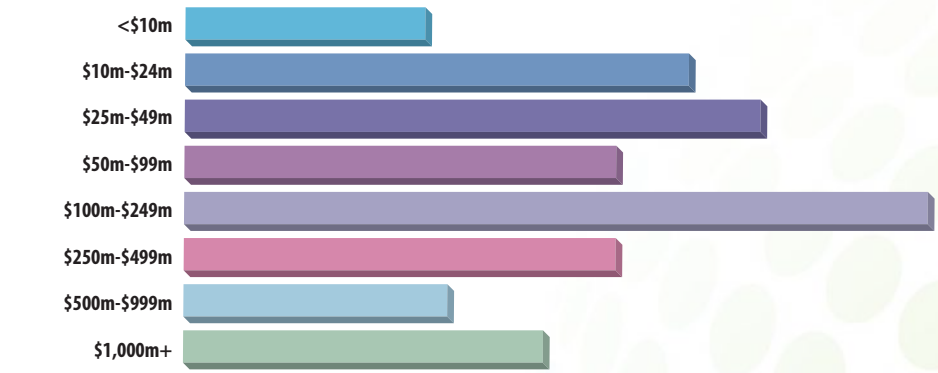
Do you think unicorns are overvalued or undervalued?



What factors influence your favoured metric?



How much has your unit invested in its history?



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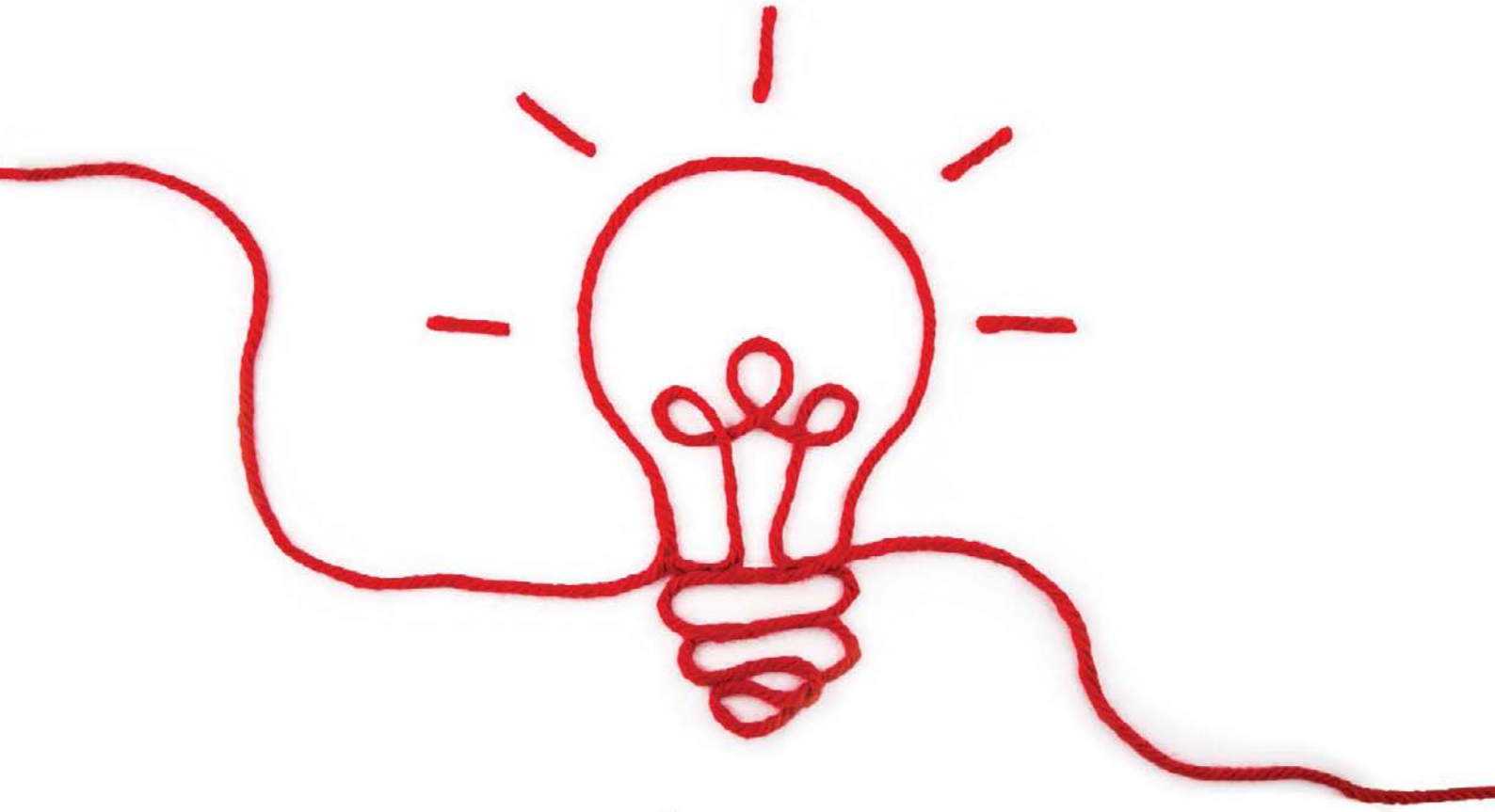

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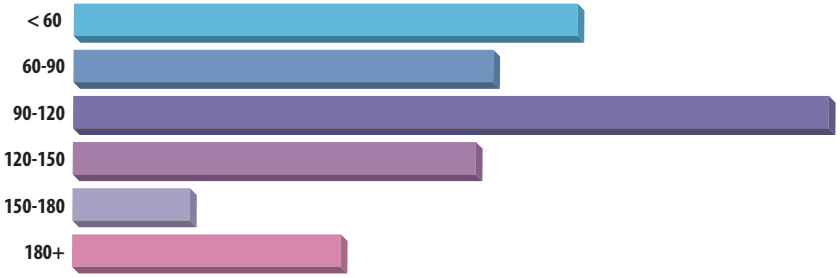
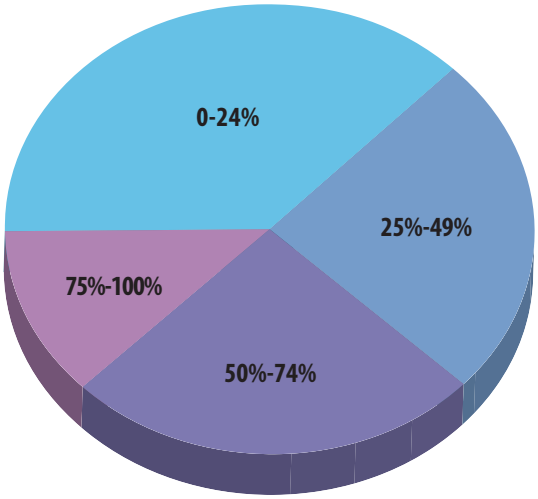
After a pitch, how many days does it take to close the deal?



In what percentage of your deals is your unit or another CVC the lead investor?



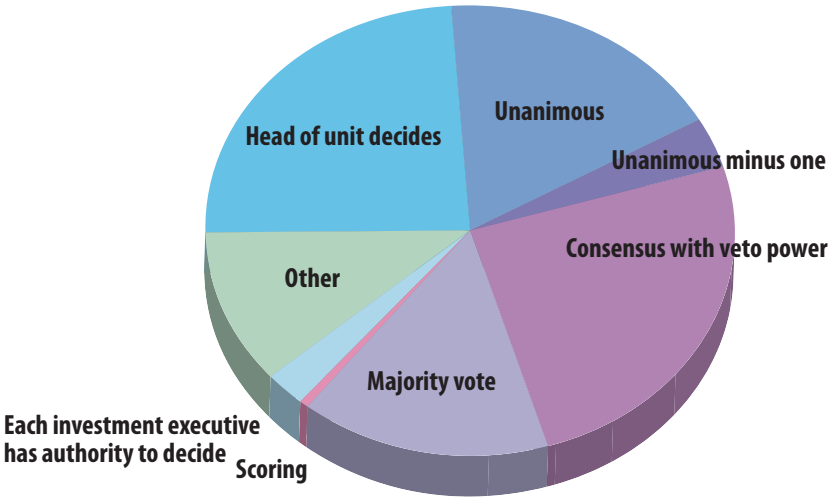
Still, CVCs are trying to help the VC ecosystem in more ways than just buying portfolio companies and syndicating deals, with more than half committing to a VC fund.

And, while the number of active VCs has shrunk – with 211 US firms conducting at least five deals a year now compared with 1,000 or more in 2000, according to the NVCA – so corporate venturing has increased. At least 143 having five or more deals a year, according to Global Corporate Venturing Analytics.

The average number of days to close a deal by CVCs was 95 days, with a fifth usually taking under 60 days.

With CVCs being relatively more active, they are leading more deals. However, corporate venturing units are relatively lean, with about half of respondents working in teams with up to three investment partners. But as the CVC industry professionalises, so it has attracted investment executives from outside the parent corporation with only half having at least 60% of their team from the parent.

How does your unit finally decide whether to invest?



CVC units were broadly split in how they decided on deals, with a quarter requiring consensus with members of the investment committee having a veto power to block a decision. At the other end the spectrum, nearly a quarter of the 164 respondents said the final decision was left to the head of the unit.

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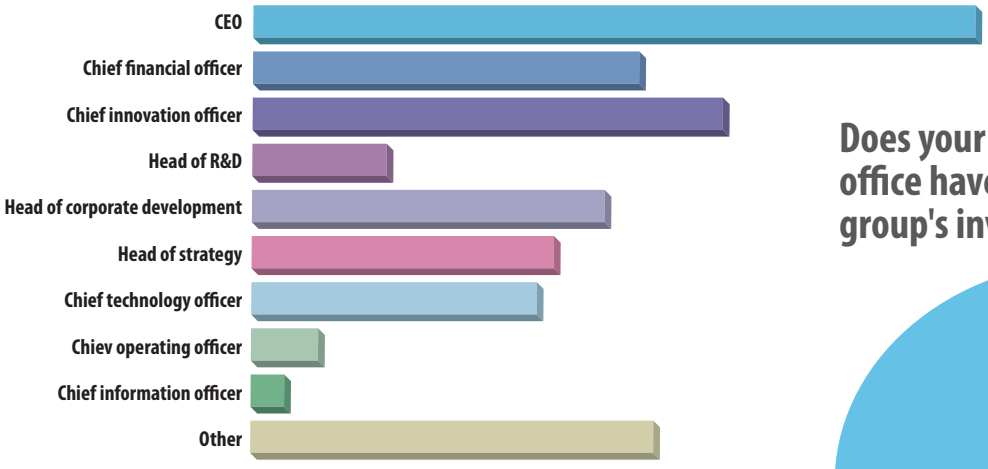
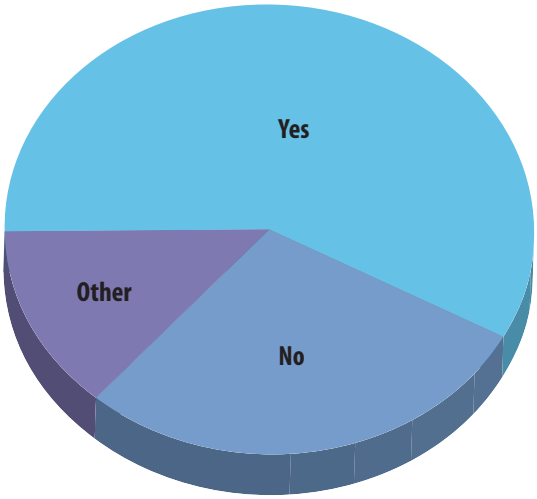
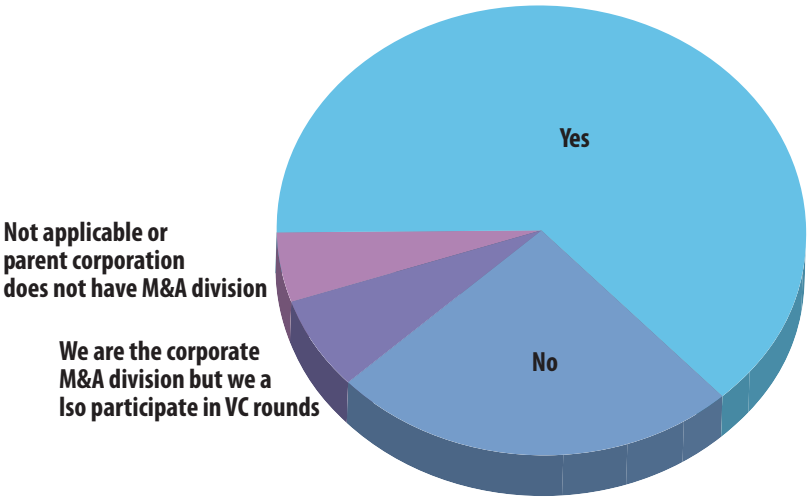
Which C-level executive does the head of your unit report to?



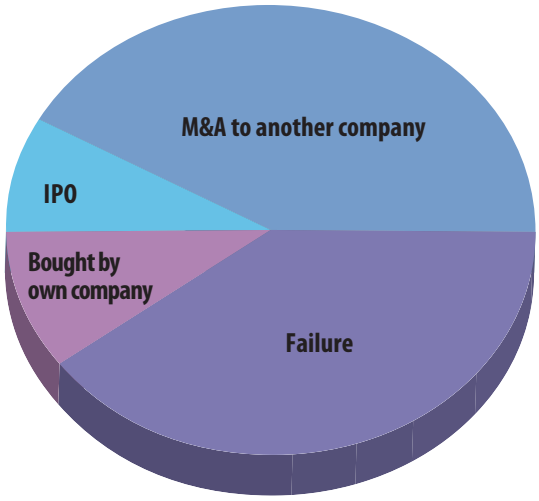
Does your company's head office have to authorise your group's investment decisions?



Do you help your corporation's M&A team identify or buy your or other venture-backed portfolio companies?



How have you exited investments?

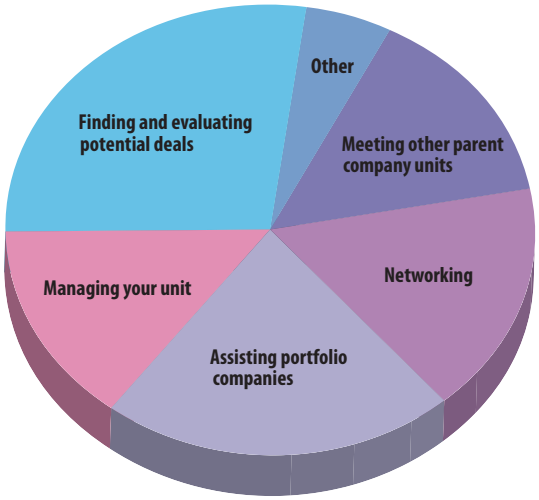


This CVC head most commonly reports to the CEO or head of innovation, such as chief innovation officer, although it is likely most of the CVCs with a stricter financial focus could report to the chief financial officer.

And, while parent corporations retain usually close oversight on deals made, with more than half needing the head office to authorise investments or have committees including C-suite executives decide, CVCs are increasingly influential in impacting a company's strategy.

Seventy percent of CVCS said they either were their corporation's corporate development team or they helped the mergers and acquisitions team identify or buy venture-backed portfolio companies. About 10% of the 1,160 exited companies had been sold to the CVCs' parents, with about 40% failing. Taking "parent acquisition" as a proportion of M&A exits (52% in total), the 20% figure was in line with GCV's M&A analysis in December.

How many hours a week do you spend on the following tasks?

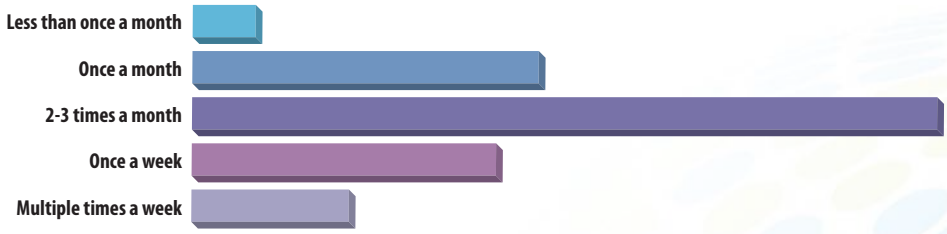


Given CVCs' often multiple goals, the average week was a busy one, with more than 48 hours worked, about half on finding deals and managing portfolio companies. The average CVC was on three boards and engaged with portfolio companies at least once a month in the first half year.

Part of this help involved directing most portfolio companies to the parent's business units for potential commercial deals together.

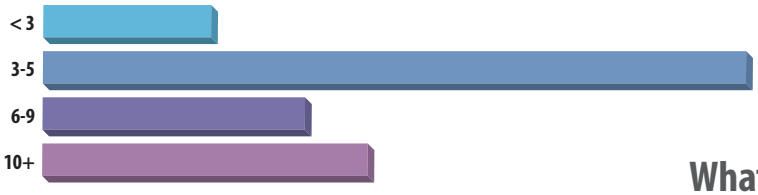
How many portfolio company boards do you sit on?

In the first six months of an investment, how frequently do you interact substantially with a portfolio company's management?



How many hours do your investment professionals spend on due diligence and researching a company before investing?

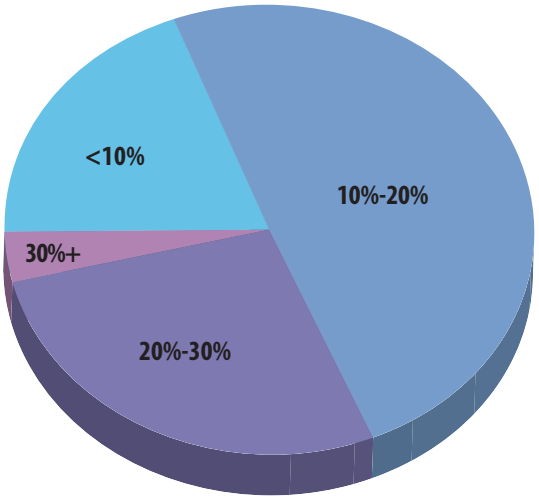
In performing due diligence, how many references do you normally call?



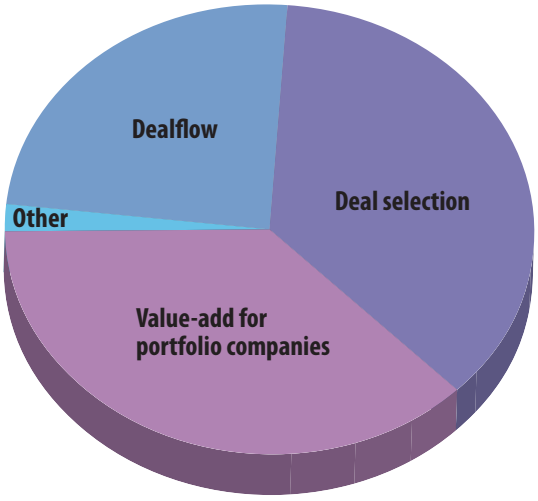
And given the 100 potential investments the median CVC considered in a year, they said they and colleagues spent on average 132 hours on each deal. Of this, part goes on checking references, with almost all taking at least three as of due diligence and an average of about seven. For this effort, CVCs usually targeted taking up to 30% of a portfolio company's equity.

Deal flow and selection were together the most factors behind a CVC's value creation and about three-quarters said they tried to forecast the financials of portfolio companies.

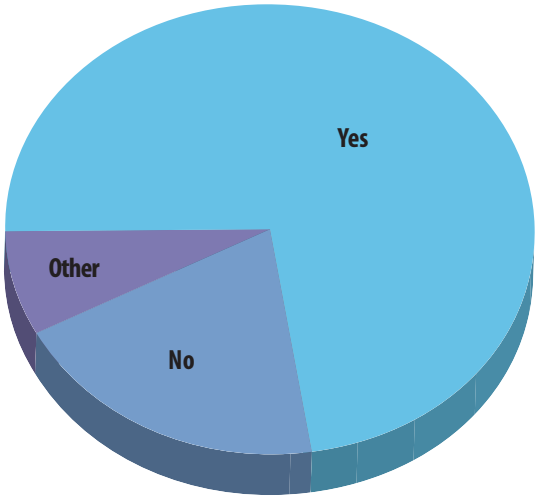
What is your target ownership stake?



What is the most important contributor to your value creation?



Do you forecast the financials of your portfolio companies, such as revenues or cashflows?



UNIVERSITY AND GOVERNMENT VENTURING IN 2016

Thierry Heles, editor of Global University Venturing and Global Government Venturing

Global University Venturing

Global University Venturing's year in review

Last year is likely to be remembered as a bad year by much of the world. The election of Donald Trump as president of the US, dreaded by a vast majority in Silicon Valley, and the UK's decision to abandon the EU, dreaded by a vast majority of universities and researchers, have caused geopolitical upset that will last for years.

So far, however, none of these things appears to have made much of an impact. In fact, technology transfer seems to remain on an upward trajectory and many of its leaders are looking ahead optimistically.

Over the past 12 months, Global University Venturing has tracked more than 50 new funds, including university venturing funds, third-party vehicles backed by higher education institutions and combined efforts by several partner universities. Both public and corporate investors were also involved on a number of occasions.

The sheer number of vehicles makes it impossible, of course, to sum them all up in this article, even though the majority have at least one distinguishing feature that would justify in-depth analysis.

Among the funds that stood out, arguably more than others, primarily for its breath-taking size, is the $7.6bn initiative unveiled by Tsinghua University in June. The vehicle, with a lifespan of five years, will supply research funding and put $1.5bn into commercialisation efforts. The money is also being used to set up 1,000 incubators across China and another 50 in the US, the UK and Germany by 2021.

Earlier in the year, Tsinghua Unigroup, a fabless semiconductor manufacturer owned by conglomerate Tsinghua Holdings that is in turn funded by the university, had already partnered electronics producer TCL for a $1.5bn fund to invest in sectors such as electronics, media and telecoms, and smart manufacturing.

TUS Holdings, the enterprise arm of Tsinghua University's Science Park, then joined forces with the Russia-China Investment Fund, backed by sovereign wealth funds Russian Direct Investment Fund and China Investment Corporation, in November for a $100m fund. That followed a $100m partnership between TUS and Russian conglomerate Sistema in March.

Not to be outdone by its Chinese peer, however, Massachusetts Institute of Technology (MIT) in May revealed it had already secured $2.6bn for a $5bn fund to accelerate the pace of its research. Dubbed MIT Campaign for a Better World, the institute hopes to tackle global problems such as climate change and access to clean water, and treat diseases such as HIV and Alzheimer's.

MIT has had an eventful year overall. Lita Nelsen, who had been with the technology licensing office for 30 years and was its director for 23 years, retired in April and was replaced in July by Lesley Millar-Nicholson, former director of the office of technology management at University of Illinois at Urbana-Champaign.

In October, MIT unveiled the Engine, a $150m initiative to provide long-term patient capital and workspace to fledgling spinouts. MIT has put $25m of its own cash into the fund, which will primarily target research-intensive innovations that have struggled to secure capital in the past.

Nelsen was not the only luminary to step down this year, having given a valedictory keynote speech at the previous year's Global Corporate Venturing Symposium in London. Tom Hockaday, head of Oxford University's commercialisation arm, then known as Isis Innovation but rebranded to Oxford University Innovation in June, announced he was stepping down in January, giving his final interview in that position to GUV the following month.

One of the key points to which Hockaday, who was replaced by Matt Perkins as chief executive in October, drew attention in that interview was the creation of university venturing fund Oxford Sciences Innovation (OSI), which he described as "a very significant immensely positive game-changer for commercialisation at Oxford".

At the time, OSI was already armed with an impressive £320m ($400m), which it extended to £580m last month. The university's own endowment fund provided part of that extension, with the remainder coming from IP Group, Wellcome Trust, Woodford Investment Management, Lansdowne and Invesco Asset Management.

The fundraising, and a £100m funding round for portable DNA and RNA sequencer developer Oxford Nanopore Technologies only a couple of days later, capped a hugely successful year for Oxford University Innovation.

Matt Perkins told GUV: "With 19 spinouts launched in the past calendar year, 2016 has been one of Oxford University Innovation's most active periods on record. The momentum behind the Oxford tech cluster is strong – exemplified by Oxford Nanopore's £100m round and OSI's extra £230m – and is set to continue well into 2017 and beyond."

Momentum appears to have been similarly strong across much of the tech transfer world. Alta Innovations, the tech transfer office of Birmingham University, began the year by ramping up its media presence thanks to the vision of chief executive James Wilkie – as GUV reported in a two-part in-depth profile in April.

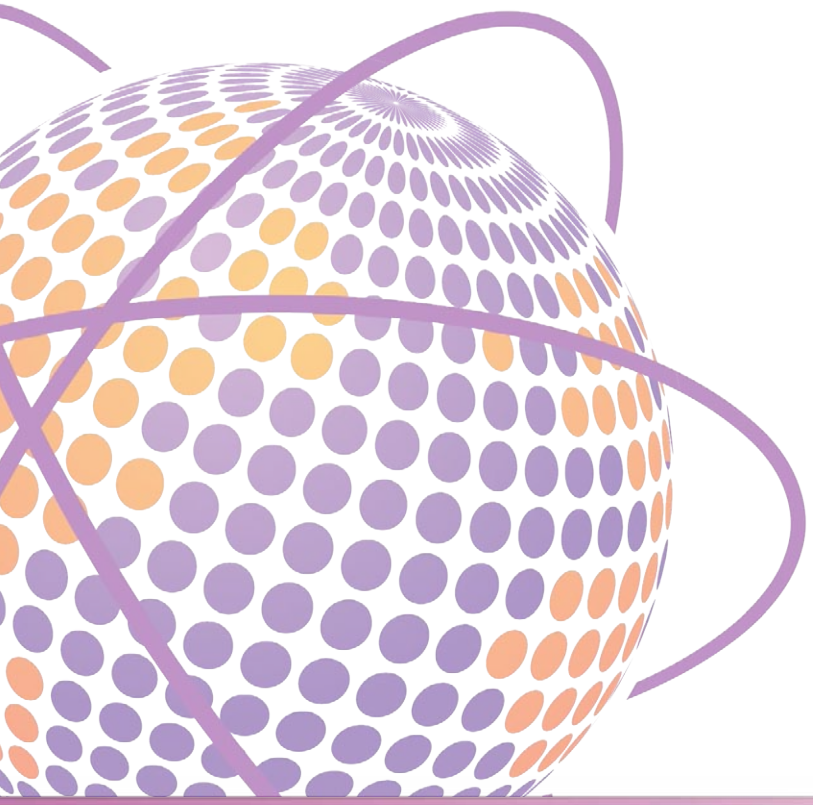
Wilkie's ambitions have continued to pay off over the course of the year. He told GUV: "2016 has been another strong growth year for Alta Innovations. We have moved Birmingham University to fourth place in the UK for identifying and protecting intellectual property (IP).

"More importantly there is growing acknowledgement of the quality of our IP. The pipeline has been showcased in many media reports covering applications such as cancer, antibacterial surfaces, transport, and computer manufacture and recycling.

"We recruited four new members of staff during 2016 and developed a number of strategic partnerships such as that with Cancer Research Technologies. These actions have substantially increased the number of our academics we are able to interact with in 2017 as well as raising our profile at a national level."

Wilkie has set Alta Innovations on a strong path for next year. He continued: "Early in the new year we will be announcing the first two investments from our £5m seed fund, and we will be working closely with five other Midlands universities throughout 2017, to raise the profile of the investible propositions coming out of the Midlands. I am anticipating that there will be substantial increases in the amount of third-party investment funding available for our collective spinout opportunities."

This year also put more remote places on GUV's radar. South Africa announced a national university venturing fund in May, and in June, Chile announced it was bringing together 26 universities and 12 science laboratories to set up tech transfer hubs supported by a $19m fund. The country hopes



increased collaboration will boost the number of spinouts, patents and licensing deals, particularly by giving smaller institutions the resources to conduct such deals.

Chile has undoubtedly followed the example set by France, which launched its regional tech transfer program in 2012. The 14 Sociétiés d'Accélération du Transfert de Technologies (Satts) are united under national umbrella organisation Réseau Satt and have been increasingly successful.

In early December, Laurent Baly, who spoke to GUV when he became president of Satt Sud-Est last year, became president of Réseau Satt, replacing Norbert Benamou, head of Satt Nord.

While numbers for individual Satts' successes in 2016 alone were yet to be disclosed at the time of our publication, Baly took the year's end as an opportunity to sum up the ambitious program to date. "The aim of Réseau Satt is to transform the power of public research into innovation for companies.

"The Satts exist to accelerate tech transfer, to save socio-economic actors time by simplifying access to the know-how of the 185 public research institutions that they represent. This time-saving is made possible thanks to each Satt enjoying a privileged operational role to help industry discover the scale of innovation by public laboratories. They also exist to provide access to a substantial investment capacity, with nearly €900m ($940m) invested in research programs."

Baly continued: "While the Satts are relatively new instruments in the French landscape – having been created between 2012 and 2014 – many researchers have quickly relied on them to disclose multiple inventions. That trust has allowed us, in a few short years, to protect nearly 1,400 inventions, invest in more than 1,000 maturation projects and sign more than 400 licensing deals, including the creation of 130 spinouts."

Back in the UK, Russ Cummings, chief executive of Imperial Innovations, the commercialisation firm spun out of Imperial College London, was also optimistic. The company has had an exceptionally strong year even by its own high standards with the launch of the £50m UCL Technology Fund, and the £40m Apollo Therapeutics fund in January giving Imperial Innovations a great start to the year.

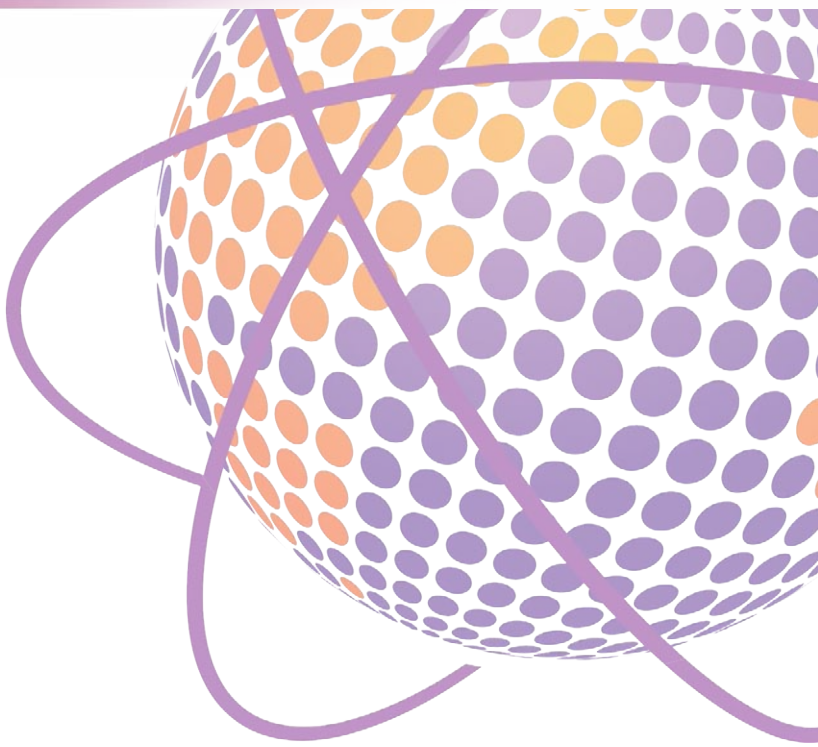
The University College London fund is made up of a £24.75m commitment from Imperial Innovations and matching funding from EU agency the European Investment Fund, with £500,000 from fund manager Albion Ventures. Apollo, meanwhile, brought together Imperial Innovations, UCL Business – the tech transfer arm of University College London, Cambridge Enterprise – the TTO of Cambridge University, and pharmaceutical firms Johnson & Johnson, through CVC arm Johnson & Johnson Innovation, AstraZeneca and GlaxoSmithKline.

Russ Cummings said: "During 2016, we significantly increased our visibility of new investment opportunities in the golden triangle, with the completion of two new initiatives.

"The first of these was in the creation of the new UCL Technology Fund and the second was our commitment to Apollo Therapeutics – a new £40m joint venture. Many of our portfolio companies made significant technical, clinical and commercial progress during the year, and whilst Circassia suffered a setback with one of its late-stage clinical trials, this is a feature of biotech investing and our strategy of supporting UK science and ambition to create world-class businesses remains undiminished. We raised a further £100m to strengthen our balance sheet, which will enable us to put more money to work in our exciting portfolio.

"We are particularly pleased by the growing evidence of strong partnership interest in these businesses, increasingly from the pharma industry, the recently announced collaboration and licence agreement between Crescendo Biologics and Takeda Pharmaceuticals being a prime example – this potentially could be worth up to $790m subject to achieving preclinical and clinical milestones. Psioxus Therapeutics also announced a significant partnership with Bristol-Myers Squibb. Both deals represent important validation of our maturing therapeutics portfolio."

Looking ahead to next year, Cummings added: "We are excited about the opening of our second office in London



early in 2017. This will coincide with a corporate rebranding exercise that will see Imperial Innovations Group renamed Touchstone Innovations.

"We are making this change to reflect the broader supply base of opportunities we are supporting across the golden triangle. The term 'touchstone' has also come to represent a standard against which the genuineness or quality of something is judged. Touchstone Innovations thus has an interesting resonance with the science focus and many positive connotations relevant to our operations."

At Cambridge Enterprise, chief executive Tony Raven, shared Cummings's enthusiasm. He said: "December 2016 marks Cambridge Enterprise's 10th anniversary and with it another record year.

"Thanks to the innovativeness of our academic colleagues and the excellent work of the Cambridge Enterprise team, 2015-16 has been another exceptional year. We made 14 investments totalling £5.3m in promising spinouts, another record for Cambridge Enterprise Seed Funds.

"Among our many successes this year, we celebrated Carrick Therapeutics raising a $95m A round – a UK spinout record – following a seed investment by Cambridge Enterprise and Arch Ventures, the sale of our portfolio companies, Cambridge CMOS Sensors to AMS, a global leader in environmental sensing and the sale of spoken dialogue spinout VocalIQ to Apple.

"Since 2011, 11 companies have either been sold or listed for a combined exit valuation of £1.3bn. That cumulative economic impact of the university is just one of many things that make us proud as we mark the 10th anniversary of our incorporation as Cambridge Enterprise Limited."

Raven also picked up on Apollo and the continuing success of Cambridge Innovation Capital, adding: "2016 also saw the launching of the £40m Apollo Therapeutics fund in partnership with GSK, Astra Zeneca and Jonson & Johnson together with Imperial Innovations and University College London.

"With our sister organisation, Cambridge Innovation Capital, an investor in high-growth Cambridge technology companies that was established as a £50m follow-on fund, and subsequently raised a further £75m, we have the resources to provide spinouts with long-term patient capital for ambitious growth.

"The pipeline for this year is already very busy and we are looking forward not only to investing in a number of new and exciting spinouts from the university but also watching the continued progress of our investee companies."

Other institutions across the world also had reason to celebrate. Japan's Keio University established an $84m fund aimed at space technology, life sciences and regenerative medicine in February, the Dutch Delft University of Technology's Robovalley Centre co-created a $112m robotics fund in June, and in July three New Zealand institutions joined a $150m Australia-based fund already involving more than 50 research institutes and hospitals.

In June, Irelamd's University College Dublin and Trinity College Dublin partnered growth equity firm Atlantic Bridge, the European Investment Fund, state-owned development agency Enterprise Ireland, and financial services firms AIB and Bank of Ireland to launch a $68m vehicle.

In the US, commercialisation firm Allied Minds boosted its coffers with a £64m placing that included a £15m contribution from asset manager Woodford Investment Management. And in Israel, Ramot, the tech transfer office of Tel Aviv University, helped establish the $20m investment consortium I3, which also attracted Microsoft Ventures, GE Ventures and Qualcomm Ventures, the respective corporate venturing units of software company Microsoft, conglomerate General Electric and semiconductor manufacturer Qualcomm. I3 is focusing on internet of things and industrial internet-of-things technologies.

This year was undoubtedly great for many tech transfer offices across the world and 2017 looks set to break more records. Global University Venturing looks forward to covering these and much more, and has some great projects in the pipeline – one of which, of course, is our annual event GUV Fusion, which will take place in May at the Grange St Paul's Hotel in London.

Global Government Venturing

Global Government Venturing's year in review

It is perhaps a sign of the times that one of the last funds to be launched in 2016 was a collaboration between Russia and Japan, which created a $1bn fund to strengthen economic ties after a 70-year rift between the two nations.

Over the past 12 months, Global Government Venturing has recorded more than 200 funds – both new vehicles and commitments to existing initiatives – and several of these warrant revisiting as highlights.

A range of countries and states have joined the government venturing space and that is no surprise considering assets under management by sovereign wealth funds totalled $6.51 trillion by May, an increase of $200bn over the previous year.

One nation hoping to tap into the startup ecosystem is Vietnam, which revealed its plans for a government venturing arm in September, saying it would also overhaul regulations that currently do not account for angel investors and venture capital firms. While the country certainly has a long way to go, its ambitious target of being a startup-friendly nation by 2020 may give it the required focus to make the necessary changes happen.

Ho Chi Minh City in Vietnam, meanwhile, also made its first moves into investments, announcing a $45m fund to help startups develop prototypes in food production, finance, insurance, commerce, transport and logistics, tourism, communication, real estate, healthcare, education, technology, mechanics, electronics and chemicals.

A couple of thousand miles to the west, a state that significantly increased its activities was India's Karnataka, which has set up a $58m fund aimed at a range of undisclosed sectors, a $7.5m vehicle targeting pharmaceutical startups and a $15m initiative to invest in semiconductor technology producers. Karnataka is reportedly the only Indian state to have made a profit from government venturing, spurring the local government to increase its commitments.

One government-owned vehicle that has not been doing so well is the New Zealand Venture Investment Fund (NZVIF), which named Richard Dellabarca as its new chief executive while dealing with a drop in the value of its investments, caused partly by the global financial crisis but also due to a clause in its agreements with VC co-investors that gives those partners the right to buy out co-investments after five years. Factoring in that clause, which was finally abolished last year, the NZVIF has achieved only a $0.93 return for every $1 invested.

The EU is often reported to be struggling with the aftermath of that same financial meltdown in 2008, but eight years on, the single market seems as determined as ever to invest in its startup ecosystem despite criticisms of European Commission president Jean-Claude Juncker's European Fund for Strategic Investments (EFSI).

In November, the EU launched a $1.7bn VC fund with the stated aim of retaining startups in Europe rather than seeing them leave for Silicon Valley due to a lack of funding. The absence of such funding is a continuing problem for Europe, but one that is increasingly being tackled by the continent's nations. Last week, Germany and France teamed up for a $1.1bn joint fund to invest in cybersecurity, nanotech, open-source software development and supercomputers.

In fact, both France and Germany are among the most high-profile government venturers in Europe, with French public investment bank BPIfrance, which has participated in dozens of deals over the past year, and German public-private partnership High-Tech Gründerfonds, which set out to raise $338m for its third vehicle in June, continuing to be household names.

Portugal also made a splash in November when it joined the government venturing world and revealed a $220m fund of funds, dubbed 200M, that will supply match funding to overseas VC funds that back Portugal-based companies. The government hopes this will have the added side-effect of convincing businesses to relocate to Portugal.

Portugal's ambitions, however, are still dwarfed by the $11bn heading towards Central and Eastern Europe courtesy of China, insurance provider China Life Insurance and conglomerate Fosun. China's aim is to use the funding

to make in-roads into the EU, which has traditionally been reluctant to accept venture capital from China.

Further north, Estonia gained a $66m fund of funds thanks to capital from the country's Ministry of Economic Affairs and Communications and the European Investment Fund. The EstFund, also backed by corporate financier KredEx, was launched in March and will split its assets across three distinct funds, allocating half the money to the Venture Capital Fund and splitting the remainder between Expansion Capital Fund and Business Angels Co-Investment Fund.

That news was swiftly followed by Estonia calling for fund managers to take over Smartcap, the VC affiliate of the country's Estonian Development Fund, in August. The new manager, which will take over running the direct investment portfolio and will be responsible for raising a new fund, was set to be announced at the end of last year.

Elsewhere in Europe, Luxembourg became the continent's first country to propose a law clarifying rules around the commercial exploitation of asteroids in June, and set aside a $223m vehicle to invest in space mining. It did not take the grand duchy long to find suitable investees and in November it put $27.6m into US-based Planetary Resources with the support of publicly-owned financial institution Société Nationale de Crédit et d'Investissement.

The US, incidentally, is the only other country to have a law governing space mining. That is in part thanks to a private sector increasingly driven to win public contracts to carry astronauts into space, but also due to one of the country's proudest and most historic organisations, Nasa. The space agency itself has been busy not only with missions to Mars, but also by releasing a database with thousands of expired patents and 56 technologies into the public domain in May. Nasa-licensed technology has already been used in a diverse set of products – ranging from baby formula to memory foam and water filtration to cloud computing – so this initiative promises interesting results.

Another US public body, the Pentagon, in September committed $75m to the new Flexible Hybrid Electronic Institute (FHEI), which will focus on wearable electronics. The Pentagon is only one of many players in this program, partnering a consortium known as FlexTech Alliance, made up of 162 companies, universities and non-profits. The FHEI is the fifth of six manufacturing institutes to be managed by the Pentagon and the ninth launched since 2012 under the National Network for Manufacturing Innovation, a program aimed at building a research-to-manufacture infrastructure for industry and academia.

In neighbouring Canada, public investors had another busy year, launching and supporting a couple of dozen funds in total, including on a national and provincial level. Sizes ranged from fairly small, such as a $3.8m fund targeting Quebec's Les Appalaches region in September, to the IT Venture Fund II, a $111.4m fund established by BDC Capital, the VC arm of state-owned Business Development Bank of Canada in March.

Finally, the year's most impressive announcement came from Saudi Arabia, where government venturing unit Public Investment Fund (PIF) revealed a $100bn fund in collaboration with Japan-based telecoms and internet group SoftBank in October. PIF is expected to provide nearly half at $45bn, with $25bn coming from SoftBank. Headquartered in London, the fund has made headlines several times since, attracting interest from Qatar's sovereign wealth fund Qatar Investment Authority later in October and Abu Dhabi's investment vehicle Mubadala Development Company in November. Last week, consumer technology manufacturer Apple was reported to be considering a $1bn commitment, which SoftBank's chief executive Masayoshi Son said earlier this month looks set to be oversubscribed.

This has been a tumultuous year, and its impact will be felt for many more years to come. The election of Donald Trump as president has the potential to reshape the world with more isolationist US policies and a friendlier attitude towards Russia and Taiwan, while the Brexit process is set to begin in April and make a wide range of economic challenges very real very quickly – which, despite their best efforts, government-backed funds may struggle to cope with. Nevertheless, 2016 ends with the global stage having readied a great deal of firepower to make sure innovative startups can access the capital necessary to grow.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