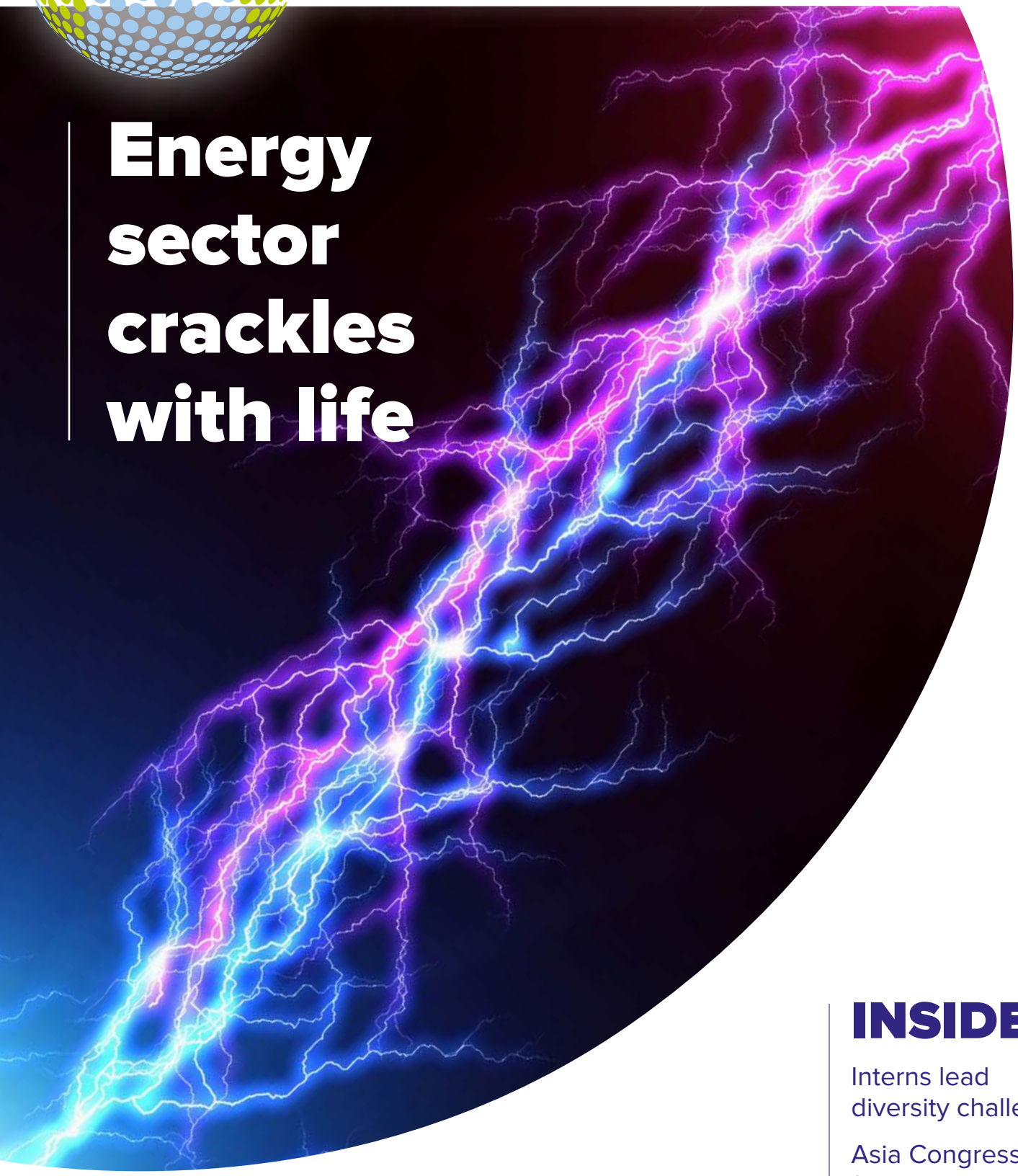
October 2018

Global Corporate Venturing



Energy sector crackles with life

INSIDE

Contents

Global Corporate Venturing

Address:
52-54 Southwark Street,
London SE1 1UN

Editor-in-chief: James Mawson
Email: *jmawson@globalcorporateventuring.com*

News editor: Rob Lavine
Email: *rlavine@globalcorporateventuring.com*

Analytics: Kaloyan Andonov
Email: *kandanov@mawsonia.com*

Supplements: Edison Fu
Email: *efu@globalcorporateventuring.com*

Features: Alice Tchernookova
Email: *atchernookova@globalcorporateventuring.com*

Contributing editor: Tom Whitehouse
Email: *twhitehouse@globalcorporateventuring.com*

Reporter: Robin Brinkworth
Email: *rbrinkworth@globalcorporateventuring.com*

Chief operating officer: Tim Lafferty
Tel: +44 (0) 7792 137133
Email: *tlafferty@globalcorporateventuring.com*

Production editor: Keith Baldock

Website: *www.globalcorporateventuring.com*

EDITORIAL

No one ever steps in the same river twice

James Mawson, editor-in-chief

"The difficulty lies, not in the new ideas, but in escaping from the old ones" – *John Milton Keynes*

It is all change here at Mawsonia. Some of you might have noticed the new coat of paint on our Global University Venturing (GUV) and Global Government Venturing (GGV) titles, and Global Corporate Venturing (GCV) of course. This may well mean a little disruption over the past and next few days, but, as our news editor, Rob Lavine, puts it, think of it as the digital equivalent of making a cup of tea while your kitchen's being redecorated. If you encounter any serious issues drop an email to *hbayes-brown@globalcorporateventuring.com* and we will do our best to sort it out.

But while change is in the air here – our GCV Connect platform will also be rolled out this autumn to subscribers to collaborate and share deals with their corporate venturing peers – the industry continues to evolve in better service to entrepreneurs and the parents providing funds and other support.

An eye-catching statistic from reporter Kaloyan Andonov in our GCV Analytics review of the data so far this year is that the value of corporate-backed deals has already overtaken the total for the whole of last year.

Last year was itself a record year, and that 2018 is on track to smash those numbers by value indicates the flattening nature of the traditional bell-curve approach to dealmaking by corporate venture capitalists.

As guest speaker Charles Szrom, investment manager at Verizon Ventures, noted in last month's GCV Analytics webinar on the telecoms sector, CVCs typically invested in series A to C rounds, but with their role in the innovation toolkit of their corporate parents growing, they are moving to earlier stages in pursuit of the longer-term ideas coming out of universities and other founts of entrepreneurialism, such as accelerators, and to later stages for the larger rounds of at least $100m.

As last month's review of the sector indicated, telecoms – much like the energy industry in this month's sector review and the focus of our Venture Houston conference next month – has in many ways been a bellwether for the industry, reflected in its personnel upheavals, strategic dislocations and fundraising.

Before our GCV Asia Congress in Hong Kong – my thanks to co-chairmen Jeffrey Li and Jay Eum, managing partners at Tencent Investment and Translink Capital respectively, for their help organising the largest CVC event in the region – I was honoured to attend the biannual Swisscom gathering of ICT and technology-focused investors in the Alps last month. The themes chosen by Dominique Mégret, head of Swisscom Ventures, reflected many of the areas currently under most development, including funding and initial coin offerings, strategic value, incentives and co-investing with peers.

A who's who of the CVC community, including leaders from Axel Springer Digital Ventures, Cisco, Deutsche Telekom Capital Partners, Ginko Ventures, Hasso Plattner Ventures, Innovacom, KPN Ventures, NGP Capital, NTT Docomo Ventures, Orange, Samsung and SEB Venture Capital, shared their insights at the Swisscom Ventures Summit 2018 under Chatham House rules.

On funding, the relative outperformance of CVCs compared with other asset classes and types of investors means it is increasingly attractive to institutional investors looking purely for financial returns.

Steven Kaplan, a professor at University of Chicago's Booth School of Business, found VCs over the past decade on average delivered about double their multiple on invested capital (MOIC) at about an internal rate of return (IRR – a measure of performance) of 20%, but, with fellow economist Antoinette Schoar over at massachusetts Institute of Technology, calculated they had also outperformed the public markets over this period.

A glance at last year's annual survey of CVCs for the World of Corporate Venturing, in collaboration with Stanford and Insead business schools, with the modal result at 11% to 20% IRR and 100% to 150% MOIC. Naturally, average or modal figures are a partial snapshot – venture skews to the relatively few outperformers, such as Tencent, SoftBank and Naspers, which have generated tens of billions of dollars through their deals.

Smart institutional investors are looking for these outliers, hence SoftBank raising tens of billions of dollars from sovereign and corporate investors for its near-$100bn SoftBank Vision Fund, Swisscom raising more than $200m for its Digital Transformation Fund and Telstra taking in minority backing by secondaries investor HarbourVest – Tim Flower, managing director at HarbourVest, and Chris Pu, head of Greater China at Telstra Ventures, discussed the deal at the GCV Asia Congress *(see conference review)*.

But rather than become purely independent with weak, if any, ties to the original corporate sponsors, a number of CVCs are trying to combine the stability and greater firepower of larger funds, often with better remuneration packages for their team to compete with independent VCs, with the greater opportunities to support portfolio companies' needs of

EDITORIAL

product development, finding customers, hiring and an exit, as well as capital.

The development of blockchain and initial coin offerings as disruptive issues for portfolio companies and the venture industry itself, through changing the nature of the transaction of securities and how entrepreneurs are funded, remains nascent but potentially seismic over the next decade, and a host of corporations are already exploring how to incubate or invest in them.

From a corporate CEO's perspective, however, the strategic value of a CVC unit can be harder to see than the financial value. Corporations typically ascribe value to the information that flows back to the parent from the range of entrepreneurs and ideas they see, and hence the improved efficiency of other innovation tools, such as research and development, and mergers and acquisitions, that can accrue.

This eyes-and-ears approach is helpful, and CVC can be the start of approaches to new markets or sectors, such as those by Nestlé, Bertelsmann, Naspers and other groups.

Strategic value could best be seen by thinking of the portfolio companies as the important stakeholders to support, and the parent as a legacy

A more interesting angle could be the strategic value for the corporation of investing in the portfolio companies and having them as a centre of attention. The life-and-death cycle of large corporations listed on stock exchanges indicates relatively few survive across decades or technology changes, and those that do often thrive if the new business units have relative autonomy to find innovation.

IBM was a classic case of reinventing itself through newer units in its move from mainframes to PCs to services, while Microsoft has seen effectively an internal coup to push artificial intelligence and the cloud against legacy office software and, in wake of the success of Warren Buffett's Berkshire Hathaway holding company over decades, Google renamed itself Alphabet as a way of forcing investors to recognise its adverts-driven search engine was the main profit driver for now, but it would take bets in other areas through corporate venturing to try to create future growth – similar to the approaches of Tencent, Alibaba and SoftBank more recently.

In this light, strategic value could best be seen by thinking of the portfolio companies as the important stakeholders to support, and the parent as a legacy to manage and enable its children's success. Tencent, for example, has supported the portfolio companies but also earned fees for its own nascent services.

But for this to happen efficiently in a field of minority investing, CVCs have to find suitable co-investing partners. The gradual blurring of venture capital as an overall industry into its larger private capital markets brethren, more closely related to public markets, is improving the professionalism and attractiveness of the industry to new recruits and existing partners as pay, already rich to the average employee, reaches the top echelons of financial services.

The calibre of CVC teams, particularly new recruits over the past few years, is impressive. The GCV Rising Stars awards – this year's nominations start this month, so applications to me – and the interns and mentoring program developed by GCV's advisory board chairman, Intel Capital president Wendell Brooks, shows the industry as a whole has deep pools of talent that if managed well, and without the ethical failings seen in most other areas of financial services, promises a better world.

Integrating the real-life networking and relationships of the leaders of the CVC community with modern digital messaging and analytics tools promises a brighter future for those best-in-class organisations by providing a better way to see and measure the support they give to the people that matter – entrepreneurs and C-suite leaders – and find suitable contemporaries to join the long road of successful investing.

As Greek philosopher Heraclitus was reported to have said: "Everything changes and nothing stands still." ◆

NEWS

Shukla replaces Schuder at HPE Ventures...

Abhishek Shukla has joined enterprise technology producer Hewlett Packard Enterprise (HPE)'s corporate venturing vehicle, Pathfinder, as managing director of global venture capital investments.

Shukla came from GE Ventures, the corporate venturing vehicle of US-headquartered power and industrial equipment maker General Electric, where he was managing director of software investments. He replaces Ray Schuder.

GE Ventures hired Shukla at the start of 2016, initially as director of software investments, before promoting him in February 2017. He previously spent two years as senior manager of corporate development and venture investments at networking technology provider Cisco, after nearly five years in a similar role at Hewlett-Packard spinoff Agilent Technologies.

Separately, GE Ventures senior associate Kamal Vasagiri left after more than three years at the unit to join electronics and consumer products manufacturer Honeywell as director of venture capital investments.

...as Suennen surfaces from GE Ventures...

Lisa Suennen has left GE Ventures, where she was managing director. GE Ventures hired her from healthcare investment firm Psilos Group in December 2016 to lead its healthcare investment team. She was one of three GE Ventures team members who jointly ranked second in Global Corporate Venturing's 2018 Rising Stars list.

Suennen had spent more than 15 years at Psilos where she was managing partner. She is also managing partner of Venture Valkyrie, a media advisory firm and platform through which she writes and conducts interviews concerning investment.

Suennen

...and Rosenberg finds route to M Ventures

M Ventures, a corporate venturing subsidiary of Germany-headquartered pharmaceutical firm Merck Group, has hired Dave Rosenberg as a managing director. Based in Amsterdam, Rosenberg will head M Ventures' New Business Fund under the leadership of the unit's managing director, Roel Bulthuis.

M Ventures makes early-stage investments in addition to creating spinoffs leveraging Merck's science and technology base.

Rosenberg came from GE Ventures, where he spent two years as managing director of business creation, having previously headed cloud investments for IP licensing firm Intellectual Ventures. In addition to his VC work, Roseberg was a co-founder and previously CEO of Mulesoft, an integration software provider acquired by Salesforce for $6.5bn earlier this year. He also founded Nodeable, a data processing platform acquired by Appcelerator in 2012.

Lai finds his way to Coatue

Jonathan Lai has left his investment director position at internet group Tencent for an investor role at US-based hedge fund manager Coatue Management, according to the Wall Street Journal. Lai led Tencent's western investments and strategic partnerships for three years. He joined Tencent in 2015 after three years as a senior product manager at game developer Riot Games followed by a short stint as head of product at Playdots, a mobile game studio backed by Tencent. Lai will concentrate on digital entertainment investments for Coatue, backing companies involved in games, music, video and adjacent enabling technologies.

Hartanto hurries to MDI Ventures

MDI Ventures, the corporate venturing arm of Indonesia-based telecoms firm Telkom, has hired Aldi Adrian Hartanto as head of strategic innovation, DealStreetAsia has reported.

Hartanto was formerly head of investment at Mandiri Capital, the strategic investment vehicle of Indonesia-based financial services firm Bank Mandiri, having joined the unit in 2016, the year after it was launched.

With $100m of capital, MDI Ventures targets startups developing technologies in areas such as payment, advertising, big data and the internet of things. It also runs an accelerator called Indigo, which provides up to $180,000 to each participant.

Before joining Mandiri Capital, Hartanto was an associate at Fenox Venture Capital from 2014 to 2016, during which time he was the venture capital firm's representative at GnB Accelerator, which was set up with IT services provider Infocom.

NEWS

Treitz tries on AWS role

Ewa Treitz, formerly a venture partner at Poland-based fund manager Black Pearls, has joined US-headquartered cloud computing service provider Amazon Web Services (AWS). She has been hired as a Germany-based business development manager for startups and the venture capital ecosystem.

Black Pearls hired Treitz in 2016 and she focused on expanding the firm's presence internationally, especially in the Baltic Sea region. She was previously a manager at 3M New Ventures, the VC arm of manufactured goods producer 3M, since 2012. At AWS, e-commerce and smart home product group Amazon's cloud computing services subsidiary, Treitz is tasked with improving services to startups in Germany, Austria and Switzerland.

SoftBank and TPG take up $300m Chinese fund

Japan-headquartered telecoms and internet group SoftBank has established a $300m corporate venturing fund in China in partnership with a subsidiary of private equity group TPG, the Investor has reported.

SoftBank will participate in the venture through SoftBank Ventures Korea, the Korea-based internationally-focused fund it set up in 2000, while TPG is represented by its TPG Growth division.

China Ventures Fund I will back early-stage companies focusing on areas such as artificial intelligence, deep tech, digital media and online content. It will be managed by SoftBank Ventures Korea CEO JP Lee and Jason Ding, a managing director of TPG Growth.

SoftBank Ventures Korea's limited partners include internet company Naver, mobile network operator LG Uplus, game producer Nexon, insurance provider KB and financial services firms KDB and NongHyup.

Saudi Aramco scrutinises plans for $1bn fund

Saudi Arabia-based oil and gas supplier Saudi Aramco is considering forming a $1bn strategic investment fund, the Wall Street Journal has reported. The fund would look to make multimillion-dollar investments in developers of technologies that would complement its Saudi Aramco's operations, and its formation could involve opening a US office, probably in Silicon Valley, sources said.

Saudi Aramco already has a corporate venturing unit, Saudi Aramco Energy Ventures, which it launched in 2012 to invest in technologies related to up and downstream oil and gas, water, petrochemicals, renewable energy and energy efficiency. It operates from offices in the Middle East, Europe, the US and east Asia and has $500m of capital.

Cigna signs off on $250m investment fund

US-based healthcare provider Cigna has launched corporate venturing vehicle Cigna Ventures with $250m of capital.

Cigna provides both healthcare and health insurance but formed Cigna Ventures to access innovative technology that can improve the effectiveness and efficiency of its services. The fund will target companies focusing on health insights and analytics, digital health and retail technology, and healthcare delivery and management.

Tom Richards, Cigna's senior vice-president and global lead for strategy and business development, said: "The venture fund will enable us to drive innovation beyond our existing core business operations, and incubate new ideas, opportunities and relationships."

Main Sequence rearranges fund to reach $167m

Australia-based fund manager Main Sequence Ventures has added A$132m ($94.8m) to its Csiro Innovation Fund 1 from investors including aerospace and defence equipment manufacturer Lockheed Martin, the Australian Financial Review reported.

University of Melbourne, superannuation fund Hostplus and Singaporean government-owned investment firm Temasek also contributed, increasing the size of the fund to $167m, $23m above its original target.

Main Sequence Ventures was set up to manage this fund, which was established in 2016 by research institute Commonwealth Scientific Research Organisation (Csiro) and Australia's federal government. Csiro committed $21.5m to the fund, taking the capital from its royalties on wifi, the wireless networking technology invented by the institute, while the government injected $50.3m.

The fund invests in domestic spinouts and small and medium-sized enterprises, with a particular focus on quantum computing, health, space and agricultural technology. It is led by general partner Bill Bartee and the team includes partners Mike Zimmerman and Phil Morle.

NEWS

Ajao's Base attracts $137m for first fund

Base10 Partners, a US-based venture capital firm co-founded by Adeyemi Ajao, formerly head of corporate venturing unit Workday Ventures, has raised $137m for its first fund, TechCrunch has reported.

Founded in January 2017, Base10 focuses on seed and series A rounds in which it invests between $500,000 and $5m per deal. It targets startups working on technology with potential mass market adoption that makes effective use of artificial intelligence.

Ajao is one of two managing partners at Base10, the other being TJ Nahigian, an investor at investment manager Coatue Management who went on to co-found mobile recruitment platform Jobr before it was acquired by human resources firm Monster in 2016.

Ajao led the formation of Workday Ventures, the corporate VC arm of enterprise software producer Workday, in 2015, the year after Workday had acquired social media analytics technology developer Identified, which he had co-founded as CEO. During his two-year-stint at Workday, which lasted until September 2016, Ajao was vice-president of product and strategy for the firm.

Base10 has partnerships in place with VC firms and funds Fifth Wall Ventures, Bain Capital, Bessemer Venture Partners, Owl Ventures and Ribbit Capital.

Imec attracts corporates to close fund at $135m

Belgium-based nanoelectronics research institute Imec has closed its early-stage and growth fund, Imec.xpand, at €117m ($135m) with backing from a range of corporate investors, including electronics manufacturers Samsung and Philips, semiconductor technology producers Applied Materials and SK Hynix, insurance firms KBC and Belfius, BNP Paribas Fortis and KPN Ventures, subsidiaries of financial services firm BNP Paribas and telecoms company KPN respectively.

Imec itself contributed capital, as did the Flemish government and its investment vehicle, PMV, state-owned regional development agency BOM, Belgian government-owned investment firm SFPI-FPIM and several unnamed universities and high-net-worth individuals.

Imec.xpand will back early-stage companies but allocate a proportion of its fund as follow-on capital for promising ventures. The fund will focus on technology startups where the research institute's expertise and infrastructure can contribute to their success. It will be managed by Frank Bulens, Peter Vanbekbergen, Cyril Vančura and Tom Vanhoutte.

Aviva devotes capital to $129m fund

Insurance provider Aviva has put its weight behind the £100m ($129m) Ahren Innovation Capital fund, co-founded by eight scientists from the Cambridge ecosystem in the UK, the Financial Times has reported. Diversified holding group Wittington Investments and undisclosed US families have also backed the fund, as have the eight researchers. Ahren expects to raise "substantially more" capital over the next few months.

Ahren was formed last year and is already operational, having led a $30m series C round for Cambridge Epigenetix, a UK-based epigenetic technologies spinout of University of Cambridge, in May this year. The patient capital fund focuses on four core areas – the human brain and artificial intelligence, genetics and biotechnology, space and robotics, and energy and environmental technologies. The eight researchers will take an active role in supporting portfolio companies.

Ahren is led by managing partner Alice Newcombe-Ellis, who graduated from Cambridge with a degree in mathematics and signed up a roster of science partners with a connection to the institution. These partners include Shankar Balasubramanian, a professor in the department of chemistry and co-founder of Cambridge Epigenetix, and Andy Parker, head of physics at the university.

Venki Ramakrishnan, president of scientific body Royal Society and a Nobel laureate, is also a science partner, as are John Daugman, a professor of computer vision and pattern recognition who invented iris recognition, and Zoubin Ghahramani, professor of information engineering. Steven Jackson, the Frederick James Quick professor of biology, and Greg Winter, a genetic engineer and master of Trinity College, have also backed the fund, as has Martin Rees, emeritus professor of cosmology and astrophysics.

7 Global grows with ProSiebenSat.1 help

US-headquartered growth equity fund 7 Global Capital (7GC) has raised $75m from investors including media company ProSiebenSat.1, which has taken a 25% stake, according to Bloomberg.

Other limited partners include Europe-based companies, family offices and private investors, and 7GC intends to increase its size to $150m in the next year, sources told Bloomberg. 7GC makes growth-stage investments in technology developers in Europe and the US, offering US-based companies operational support, network and access to the resources of its LPs to help them enter Europe.

NEWS

State Farm plants $100m in investment fund

US-based insurance firm State Farm has launched $100m corporate venturing fund State Farm Ventures. State Farm's core business involves life, health, property and casualty insurance as well as financial services products, but it has also moved into areas such as home automation, connected care and backup energy technology.

The company runs open innovation and research hub 485 Think Lab, and was one of 11 corporates that provided $11m for autonomous vehicle research lab Mcity in November last year. Michael Remmes, a State Farm innovation executive who recently moved over from an associate general counsel position, will head the fund.

Aflac amplifies corporate venturing fund to $250m

US-based insurance provider Alfac has increased the size of its corporate venturing vehicle, Aflac Ventures Fund, from $100m to $250m. The firm also extended the unit's investment timeframe from three years to four. The fund was formed in March last year as a subsidiary of larger unit Aflac Corporate Ventures, and has so far made eight investments across the US and Japan, it said, paying between $1m and $6m for equity stakes of between 3% and 14%.

NAB Ventures nets $36m for second fund

Australia-based financial services firm National Australia Bank is doubling the amount of capital available to its NAB Ventures unit to A$100m ($71.9m), Australian Financial Review has reported. NAB Ventures was launched in 2015 with A$50m to fund developers of technology supporting NAB initiatives such as connecting businesses and strengthening cashless payment options. The latest capital will be allocated to a A$50m second fund that will focus on artificial intelligence and data technology. Other areas of interest include cybersecurity, agriculture technology and products that could help NAB improve its customer service.

FoodShot to make $30m funding impact

US-based investment platform FoodShot Global was launched with support from partners including financial services firm Rabobank. FoodShot plans to provide up to $10m in equity funding and $20m in debt financing to startups working on innovative solutions making the global food system more equitable and sustainable.

The fund's partners include Generation Investment Management, Mars Edge, UC Davis Innovation Institute for Food and Health, the Rockefeller Foundation, Builders Initiative, Armonia, Stone Barns Center for Food and Agriculture, Acre Venture Partners – a VC firm laucnhed by Campbell Soup – Foundation for Food and Agriculture Research, Path Foundation, Nature Conservancy and Soil Health Institute.

Working Capital lands funding from Zalando

US-based venture capital fund Working Capital has increased its total capital to $25.2m with a $2.5m investment by e-commerce marketplace Zalando and philanthropic organisation Children's Investment Fund Foundation.

Working Capital plans to invest in developers of technologies such as machine learning and internet-of-things sensors which can support ethical supply chains and eliminate abusive working practices in the manufacturing and sourcing of consumer products. The fund's existing partners include entertainment provider Walt Disney, Humanity United, Walmart Foundation, C&A Foundation, Stardust Equity, Open Society Foundations, the Ray and Dagmar Dolby Family Fund.

Humanity United, a subsidiary of impact investment firm Omidyar Group, launched Working Capital in January.

Alabama Futures Fund aligns with corporates

US-based Alabama Futures Fund (AFF) has closed a $25m venture capital fund having secured capital from limited partners including insurance provider Protective Life Insurance and construction firm Hoar Construction.

AFF is targeting early-stage startups in the state of Alabama or those willing to relocate to the area, and will participate in rounds across a wide range of sectors. The fund is managed by VC advisory firm Redhawk Advisory and intends to back companies raising seed capital with a view to adding series A funding in the next two years.

The fund's limited partners include individual investors Raymond Harbert, G Ruffner Page Jr, Charles Barkley and Benny LaRussa Jr. It has yet to disclose any investments.

NEWS

Golden Gate closes third fund with $100m

Singapore-based venture capital firm Golden Gate Ventures has closed its third fund at $100m, having secured diversified conglomerate Hanwha, internet company Naver and property developer Mitsui Fudosan as investors. Others include state-owned investment firm Temasek, government-backed Korea Venture Investment Corporation, financial holding company CTBC Group, investment banking firm Ion Pacific, startup hub Mistletoe, IDO Investments and EE Capital.

Founded in 2011, Golden Gate concentrates on series A-stage investments in Southeast Asian companies developing mobile and online-focused consumer offerings. The oversubscribed third fund reached its $65m first close last month, and it follows a similarly oversubscribed second fund which closed at $60m in 2016 with backing from Naver, Temasek, Hanwha subsidiary Hanwha Life Insurance and media company Hubert Burda.

Financial services provider Siam Commercial Bank and real estate developer Far East Organisation also contributed to the second fund, through their Digital Ventures and Far East Ventures units respectively.

Antai accesses corporates for funding

Spain-based venture builder Antai has received €20m ($23.2m) from investors including insurance provider Mutua Madrileña and InnoCells, the digital innovation arm of financial services firm Banco Sabadell, Finextra has reported. The two backers each supplied €5m. The rest of the funding came from Antai's founders and assorted family offices.

Antai partners entrepreneurs in building startups, putting up funding as well as offering business development, financial and legal advice. Its ventures include hyperlocal e-commerce platform Wallapop, delivery services provider Glovo and recruiment platform Cornershop.

Corporates reward Hustle in first fundraising

US-based venture capital entity Hustle Fund has closed its first fund at $11.5m, having secured capital from limited partners including games publisher Shanda, messaging platform Line and internet company Naver, E27 has reported.

Hustle Fund 1's investors also include founders and executives of apparel retailer Zappos, customer experience software provider Optimizely and personal finance platform NerdWallet. It had set a $50m target according to a September 2017 securities filing.

The fund makes pre-seed investments in software developers based in Southeast Asia and North America. It invests an initial $25,000 in each portfolio company, instigating a four-to-six week growth project with each, and has backed 40 companies across the US and Canada.

Hustle's co-founders and general partners are Shiyan Koh, formerly vice-president of business operations and corporate development for NerdWallet, Eric Bahn, an former venture partner at VC firm 500 Startups, and Elizabeth Yin, formerly a partner at 500 Startups.

Reply searches for latest Best in Breed

Breed Reply, the seed-stage investment vehicle for Italy-headquartered data and internet-of-things (IoT) services and technology provider Reply, has launched its eighth call for startups. The Best in Breed initiative enables developers of IoT technology to apply for funding, organisational support and access to expertise covering areas such as strategy, commercial operations, marketing, technical specifications and finance. The scheme was launched in 2014 and Breed Reply's portfolio now contains more than 20 IoT businesses, including Inova Design, Canard Drones and FoodMarble.

Sky pays $4m to Reimagine Ventures

Media company and broadcaster Sky has provided $4m of capital for Remagine Ventures, an Israel-based venture capital fund investing in entertainment, data and commerce technology developers.

Reimagine was founded by Eze Vidra, a founding member of GV's European office, and Kevin Baxpehler, who headed media group ProSiebenSat.1 Media's Israel office. Sky made the investment alongside the opening of an office in Berlin, Germany, from which it will expand its corporate venturing activity in mainland Europe. It began investing out of a UK base in 2012 before launching a Silicon Valley office two years later.

NEWS

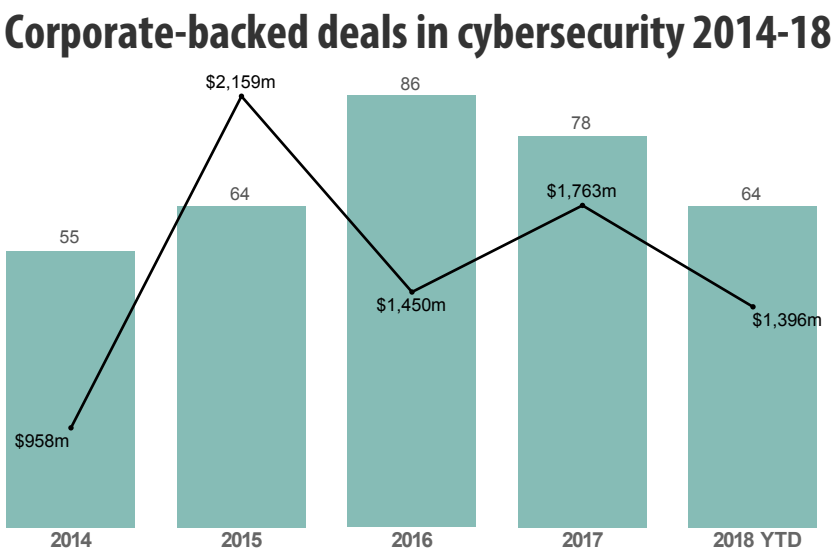
Analysis: AnchorFree funding part of cybersecurity drive

Kaloyan Andonov, reporter

Media holding company WndrCo's leading of a $295m round raised by US-based mobile privacy software provider AnchorFree is part of rising activity in cybersecurity.

The transaction included venture capital firms Accel, 8VC, SignalFire and Green Bay Ventures. The company also has backing from investment banking firm Goldman Sachs, which led a $52m series C funding round in 2012. AnchorFree has reportedly received $358m in funding to date and has been registering profits since 2010.

Founded in 2005, AnchorFree has developed applications for mobile devices allowing users to surf the internet more securely. Its major app, Hotspot Shield, runs as a virtual private network that enables users to browse more securely by protecting their identity and encrypting data. The application has been downloaded 650 million times.



WndrCo is a holding company which invests in, acquires, develops and operates media and consumer technology businesses. It recently helped raise a record $1bn seed round for NewTV, which pursues a business model based on production of dramatic video content divided into episodes of about five to 10 minutes.

AnchorFree is part of the broader cybersecurity space, which has seen a lot of attention from corporate investors in recent years. In the era of internet, datafication and the emerging internet of things, the demand for tackling cyberthreats and providing user privacy is growing. It is no surprise that strategic investors from every sector undergoing digitisation are placing their bets on such enterprises. ◆

SPECIAL REPORT

Bringing the best and brightest into the industry

James Mawson, editor-in-chief

Mentoring the next generation of leaders and investors is critical to the success of our parent companies, the expansion of investment opportunities, and the growth of the world economy. Although most of the top 50 corporate venture investors have women in their senior investment ranks, there is still much work to do to bolster diversity throughout the corporate venture capital community and beyond.

During the 2018 Global Corporate Venturing & Innovation (GCVI) Summit, Intel Capital president Wendell Brooks challenged the CVC community to hire at least one diverse intern this past summer, and an enthusiastic response by many of the industry through the GCV Leadership Society, included a five-part workshop set up by GE Ventures at which Brooks was an opening speaker.

Brooks said: "It was good to see many of you at the GVCI Summit. As our intern recruiting efforts are in full gear, I wanted to follow up with you on the challenge I laid out at the event for each CVC to hire at least one female or underrepresented minority intern this summer.

"Intel has a strong commitment to diversity and inclusion. I personally feel responsible for changing the talent pipeline and ensuring broad representation. Hiring and developing interns who come from diverse backgrounds is one of the ways we can do this.

"As Sue Siegel reminded us in her remarks, when it comes to diversity, we have a responsibility to ourselves, we have a responsibility to each other, and we have a societal responsibility. Imagine the power we can have to create change if we work together in this way."

"Imagine the power we can have to create change if we work together"

Leadership Society signatories included:
Grant Allen, head of ventures, ABB Technology Ventures
John Banta, executive director, venture team, BlueCross BlueShield Association
Brian Schettler, managing director, Boeing HorizonX Ventures
Scott Brown, vice-president ventures & outreach, CableLabs
Jaidev Shergill, head of Capital One Growth Ventures
Amy Banse, managing director & head of funds,Comcast Ventures
Sue Siegel, chief innovation officer and CEO of business innovations, General Electric
Bonny Simi, president, JetBlue Technology Ventures
Tom Heyman, global head of JJDC, Johnson & Johnson Innovation–JJDC
Ian Simmons, vice-president, business development corporate engineering and R&D, Magna International
William Taranto, president, Merck Global Health Innovation Fund
Nagraj Kashyap, corporate vice-president, global head, Microsoft Ventures
Warren Pennington, principal fintech strategies, Vanguard Group
John Doherty, then senior vice-president, corporate development, and president, Verizon Ventures

Akira Kirton, managing director at BP Ventures, added after his panel on the topic at the GCV Symposium in May: "This is an area that a number of us in the CVC world also care passionately and deeply about."

His boss, David Gilmore, vice-president, said its gender ambition was to have 30% of senior leaders as diverse. Overall, a majority of the industry's Rising Stars are female or minority or both, as nearly half of corporate venturing's top leaders included in the GCV Powerlist 2018.

Wendy Lung, head of IBM Ventures, said diversity was part of its hiring practices and William Taranto, president of the Merck Global Health Innovation Fund, said while the group did not hire interns it did hire a minority analyst.

Geert van de Wouw, vice-president of Shell Ventures, caught the general mood, saying: "I herewith wholeheartedly and passionately support Intel Capital's Wendell Brooks' call for more diversity in our corporate venture capital industry.

"In 2017, we have doubled the size of our Shell Ventures team, but found it particularly tough in that process to find female VC talent, as the VC industry is – unfortunately – still very male-dominated. I am a firm believer of diversity in teams, as this drives diversity of views and perspectives in our teams, which is key to the decision-making quality of any venture firm.

"It is for this reason that Shell Ventures has embarked on a conscious initiative – as part of our Shell Ventures 2.0 Improvement Plan – to hire more female and underrepresented minorities in our team. I am leading this effort together with Ashley Smith in my team, who is equally passionate about this initiative.

"We have come to the realisation that, besides our continued efforts to hire external female and minority talent into Shell Ventures, for example for our growth plans in China, we also have to be very deliberate in growing our own tal-

ent through hiring female / minority talent into more junior positions at Shell Ventures. These roles can be investment associates or Interns.

"I am committed to making this happen at Shell Ventures and am glad to join Wendell in an open letter to the CVC community, extending this challenge and endorse this important initiative!"

Similarly, Thomas Rodgers, head of McKesson Ventures, added: "I appreciate this initiative and the spotlight the industry is shining on diversity and inclusion. I also thought I would pass along that I can proudly claim that the McKesson Ventures team is comprised of 70% women and 40% persons of colour.

"However, we have a way to go before we can make similar level of claims about our portfolio CEOs. But we have made strong progress on that front as well over the past year."

And groups are setting up dedicated funds to help. Microsoft's M12 corporate venturing unit, Silicon Valley Bank and VC firm EQT Ventures this summer launched a contest to fund enterprise startups with at least one female founder.

Unilever Ventures has set up a fund for women, New Voices Fund, as part of Unilever's agreement to acquire New York-based Sundial Brands, which makes hair and skincare products for people of colour.

Earlier, Intel Capital in 2016 announced a $125m initiative to seek out qualified technology entrepreneurs with diverse backgrounds. And Intel Capital has exceeded its dollar commitment and by the end of last year had more than 45 diverse teams with over $250m of capital in our portfolio.

Brooks in his GCV Powerlist 100 award profile said: "In 2017, we more than doubled our 2016 record for backing diverse companies, and those diverse companies represented over 20% of our total investments in 2017. "

By comparison, in the next five years, female-focused organisation All Raise said it would like to see venture investments in female-founded companies move to 25%. Data provider Crunchbase's review over the past 10years found 2015 was the first year that companies with at least one female founder passed the 10% threshold by venture dollars, while last year was the best full-year at 14%. So, while work remains to be done, the result of the top-down focus on attention and change comes results and a groundswell of new entrants that promises an even-more diverse, successful industry in future.

Sue Siegel, chief innovation officer and CEO of business innovations, General Electric

Did you complete the challenge?

At GE, we believe that diversity and performance go hand in hand. We have always been strongly committed to diversity and inclusion – it is part of our competitive advantage. We apply that same belief to our intern program by hiring interns with a wide range of backgrounds and expertise.

Tell us more.

We hire summer interns to support the various disciplines in GE Ventures. This includes equity investing, licensing and business creation, as well as functional roles in marketing, commercial development, risk and portfolio management and finance. We hire interns with diverse backgrounds and expertise. This summer, our intern class came from all over the US and abroad, and did an excellent job contributing to our teams and providing unique perspectives. The summer intern program culminated with a series of portfolio company site visits and workshops. Our interns also participated in GE Ventures' diversity and inclusion workshops with the entrepreneurial ecosystem to see how start-ups can adopt this important practice.

Lessons learned.

We are committed to an environment where all employees contribute and the best ideas win every day. We fundamentally believe that diversity of thought and experience results in better business outcomes.

Plans for the future surrounding diversity and inclusion.

At GE Ventures, we want to help the startup ecosystem solve for diversity and inclusion. We recently developed a framework for bringing greater clarity to building a diverse startup ecosystem. We call it R2P2 – recruit, retain, promote, and protect. The R2P2 framework encapsulates the core areas of focus that every startup company needs to consider when designing and growing their team. Over the past few months, our team hosted five diversity and inclusion workshops in key ecosystems where we work and invest, including Chicago, London, Boston, New York and Menlo Park. We convened 180 individuals, over 120 organisations, venture capital teams, startups, nonprofits to discuss ways to recruit, retain, promote and protect diverse talent. It is a great program that we will continue to offer our portfolio companies and ecosystem partners."

SPECIAL REPORT

Bonny Simi, president, JetBlue Technology Ventures:

Did you complete the challenge?

We completed the challenge and hired a young woman as our summer intern.

Tell us more.

Our intern, Jamie H, attends Embry-Riddle Aeronautical University Worldwide and is pursuing a bachelor's in science in aeronautics. She came to us through the Brooke Owens Fellowship program for women interested in aerospace and aeronautics. She has a passion for aviation and co-founded the non-profit organisation Youth Aviation Programs Association. She is specifically interested in reaching women, lower-income young people and youth of colour to encourage them to pursue their dreams.

In what area did the intern work?

Jamie was exposed to Silicon Valley and corporate venture capital through participation in team meetings and attending various startup pitches during the summer. She learned about many new companies and technologies transforming travel and how the business of corporate venture capital works. She also worked on two community projects. She worked with the local Hiller Aviation Museum to help them develop promotional videos and she worked with the Girl Scouts of Northern California to develop programming to establish an Aviation Badge. She presented a business case for an aviation badge, sample curriculum and 24 letters of support from various aviation organisations nationwide. During the summer she travelled to New York, Washington DC, southern California and Colorado for meetings with other museums, Nasa, legislators and regulators, and the Aviation Community Foundation Board.

Intern Jamie, left, with Bonny Simi

How did the internship go?

The internship was a resounding success. From JetBlue Technology Ventures' perspective, Jamie brought a fresh energy and perspective to the office and a youthful enthusiasm for everything she worked on and was exposed to. She created a compelling case for the Girl Scouts Aviation Badge and culminated her internship with a presentation to the CEO of the Girl Scouts of Northern California. JetBlue is very community focused and creating opportunities to expose young women and underrepresented groups to the world of aviation is a priority. She was also able to directly connect a portfolio company with the 2018 Brooke Owen's Fellow Grand Challenge project focusing on coastal relief.

From Jamie's perspective, it expanded her world view in a myriad ways. She lives in North Carolina and had never been west of Wisconsin, so to live and work in Silicon Valley was life-changing. She learned how the work environment in Silicon Valley is significantly different from what she had been used to. She had never travelled on a jet prior to her internship and by the end of the summer she was a seasoned traveller. She learned about startups, venture capital, how to craft and deliver an effective presentation, how to story board, outline, write and direct YouTube videos, and made contacts all over the country. She developed a greater confidence and sense of self through her work and time here. Over the summer through her contacts related to the projects she was working on, she had been offered several jobs. At the end of her internship, she accepted one of those jobs and is now working for the Aviation Community Foundation and is back in school.

Plans for the future surrounding diversity and inclusion

As we make any new hires we make sure to have a diverse slate of candidates for interview.

Ian Simmons, vice-president, business development at Magna International

Did you complete the challenge?

Yes.

Tell us more.

As part of our intern intake this year, I had four university students from a business and engineering background.

In what area did the intern work?

Innovation development.

How did the internship go?

SPECIAL REPORT

A broad selection of tasks, both technical and commercial. Both parties were pleased with the experience and results. We hired one young woman who is attending Perdue to join after graduation in 2019.

Lessons learned.

Orientation should give more information on the Magna Groups and their products and technical challenges.

Plans for the future surrounding diversity and inclusion.

Magna will continue to expand its internship program and outreach to attract a diverse mix of applicants who hopefully we can hire from.

Brian Schettler, managing director, Boeing HorizonX Ventures:

Did you complete the challenge?

Yes, we brought in two underrepresented minority individuals and they are still employees with HorizonX ventures

Tell us more.

One intern was a former Merrill Lynch employee and the other was fresh out of undergrad.

In what area did the intern work?

Both in venture investing.

How did the internship go?

A great opportunity to grow a bench of strong investment professionals.

Plans for the future surrounding diversity and inclusion.

It will continue to be a pillar of our hiring and investment philosophy.

Global Corporate Venturing

Global University Venturing

Venture Houston

November 8-9, 2018

Take Advantage of Early Bird Rates!

Our second annual Houston conference, hosted by Global Corporate Venturing (GCV) and Global University Venturing (GUV), will see concurrent tracks debate the convergence of digital, decarbonisation and centralisation on the energy sector by the main corporate venturing units and their portfolio companies while, in partnership with the National Council for Entrepreneurial Tech Transfer (NCET2), the main US and international universities will gather to develop best practices for their venturing and startup approaches in parallel through the GUV Leadership Society and its Powerlist 100.

Last year's inaugural conclave championed the resilience of the Houston-based and broader Texan venture capital and innovation industries. It came on the day the Houston Astros won their first World Series, and the world will once again turn to the city for inspiration.

Contact us for more information
tlafferty@globalcorporateventuring.com

www.venture-houston.com

SECTOR FOCUS

Energy sector grows again

Kaloyan Andonov, reporter, GCV Analytics

GCV Analytics defines the energy sector as encompassing renewable energy technologies and providers, oil and gas technologies, energy storage, management and equipment along with grid and power supply technologies, energy software and analytics, energy utilities.

The energy sector is, by its nature, a driver of virtually all economic activity, though almost always ridden with concerns about environmental impact. Thus, reducing impact and increasing efficiency are two themes defining innovative aspirations in energy.

The sector is experiencing a profound change in the mix of energy sources – some of which have a much lower impact on the environment – and how they are managed more efficiently. Many of the growth opportunities lie in large emerging economies such as China.

Renewable energy sources are continuing to gain importance around the globe. A report – Global Trends in Renewable Energy Investment 2018 – prepared jointly by UN Environment', the Frankfurt School-UNEP Collaborating Centre and Bloomberg New Energy Finance, ascertained that 157GW of renewable power were commissioned in 2017, far surpassing the 70GW of net fossil fuel generating capacity added.

The report also stated: "Solar power rose to record prominence in 2017, as the world installed 98GW of new solar power projects, more than the net additions of coal, gas and nuclear plants put together." Overall investment in renewables globally stood at $279.8bn in 2017, up 2% year-on-year, representing a cumulative investment of $2.2 trillion since 2010.

This long-term growth has been due to decreasing capital requirements and generating costs for renewables. The levelised cost of electricity for solar photovoltaics and wind power generation has been reduced over the past years, which has given a boost to the competitiveness of these energy sources compared with traditional sources like coal and gas.

The report added: "China accounted for just over half of that new global solar capacity in 2017, and it accounted for 45% of the $279.8bn committed worldwide to all renewables." The report also noted increases in renewables investments across other geographies, such as Australia, Mexico, the United Arab Emirates and Egypt. In the US, which remains a distant second behind China, capital commitments to renewable tech have stayed, according to the report, "resilient in the face of policy uncertainties, although changing business strategies affected small-scale solar".

The situation is similar for water tech and water treatment technologies. This sub-sector is expected to grow globally and the growth will be fuelled mostly by developments in China, with a combination of rising demand for potable water and increasing levels of pollution. Consulting firm Grand View Research's analysis – Water treatment systems market size, share and trends report 2018-2025 – forecasts the global water treatment systems market, estimated at $23.8bn, will register a compound annual growth rate of 7.1%.

The report summarises the drivers behind it. "Asia-Pacific is estimated to lead the global market over the forecast period. Economic performance is projected to rally in China in the coming years with large-scale investments in technology and research. China is undertaking massive changes in the water supply and sanitation scenario in the country to overcome numerous challenges including economic disparity between urban and rural population and increasing urbanisation."

It also points out that water treatment system manufacturers are currently focusing on systems and units that can function without a constant electricity supply, so they can be employed in remote and rural areas.

A major challenge for many emerging technologies today, including electric vehicles and renewable power generation, lies in energy storage technologies. Consultancy firm McKinsey's report – Battery storage: The next disruptive technology in the power sector – prices of such technologies are going down and this has been driven largely by demand in

consumer electronics and electric vehicles. Battery-pack costs have decreased considerably to $230 per kWh in 2016 from $1,000 in 2010 *(see special report)*.

While there have been notable advances in consumer applications, the decarbonisation of heavy industry remains a complex technological challenge which is likely to create opportunities for tech developers. A 2018 McKinsey report – Decarbonisation of industrial sectors: The next frontier – found that ammonia, cement, ethylene, and steel companies can reduce their CO2 emissions to almost zero through efficiency improvements, electric prouction of heat, use of hydrogen and biomass as feedstock or fuel, and carbon capture. However, the decarbonisation process is expected to cost between $11 trillion and $21 trillion by 2050 and would necessitate much higher levels of non-carbon electricity generation than presently available.

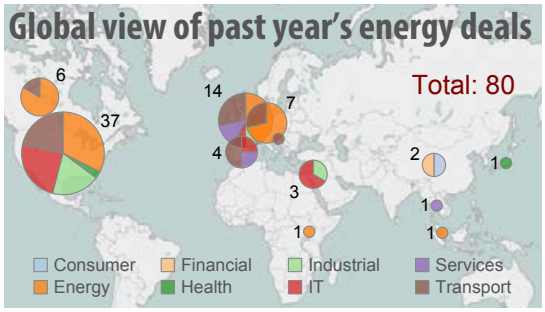
The oil and gas subsector of the energy industry still plays a crucial role but is susceptible to constant fluctuations in market conditions. After the recovery of oil prices and the increase in US oil production, the sector is currently optimistic. However, a report by consultancy firm PwC – Oil and gas trends 2018-19 – stated that the sector may "very well be moving headlong into a supply crunch" due to growing oil demand. The report recommends that oil and gas "maintain capital discipline and the focus on productivity improvements and applying new technology" and also reorient themselves towards a transition to a lower-carbon energy world".

This implies that, aside from rationalising oil-rich assets in terms of acquisition and divestments as well as streamlining operations to increase efficiencies, oil and gas industry players would double down on digitisation – using advanced digital technologies to bring about operational efficiencies, from predictive maintenance and data analytics through drones inspecting offshore platforms to using robots to reduce workers' exposure to hazardous conditions. Our data on venturing deals corroborates the strategic interest such technologies constitute for oil and gas majors.

Corporates in oil and gas have also been seeking opportunities in low-carbon energy applications, from renewables such as solar and wind energy to infrastructure for electric vehicles. The PwC report noted, for example, how energy utility company Engie divested its upstream assets to refocus on power and renewables. The report also pointed out that switching focus to natural gas, which, estimates suggest, constitutes a 10 to 15-year potential growth opportunity, may turn out to be a much-needed bridge to a low-carbon economy.

Electric power utilities are driven by a set of technological and regulatory forces. While the latter vary in each geography, the former affect most regions. Consultancy Deloitte's report – 2018 outlook on power and utilities – noted that, the most visible technological change in recent years by far has been the change in the ratio of power sources. In the US, for example, generation from non-hydro renewable sources – mostly solar and wind – has doubled, while natural gas, due to its low prices surpassed the share of coal-generated power in 2016.

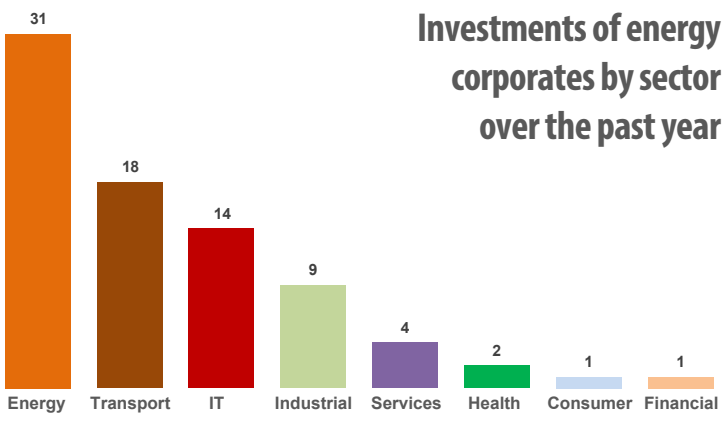
Not only is power generation becoming more diverse and cleaner but power distribution and consumption are becoming smarter. The Deloitte said: "Whether it is distributed generation, energy storage, microgrids, energy efficiency, electric vehicles, smart appliances or demand response, residential and commercial electricity customers seem to increasingly see these products and services as a way to manage their energy use, save money, reduce their carbon footprint, and boost reliability and resilience."



The challenges facing energy utility companies in terms of the diverse mix of energy sources presuppose investments in software and advanced analytics tools to modernise existing grids and make distribution more efficient, particularly as the falling costs of renewable energies encourage grid defection among customers.

In the period between September 2017 and August 2018, GCV reported 80 venturing rounds involving corporate investors from the energy sector. Nearly half (37) took place in the US, while 14 were hosted in the UK and seven in Germany.

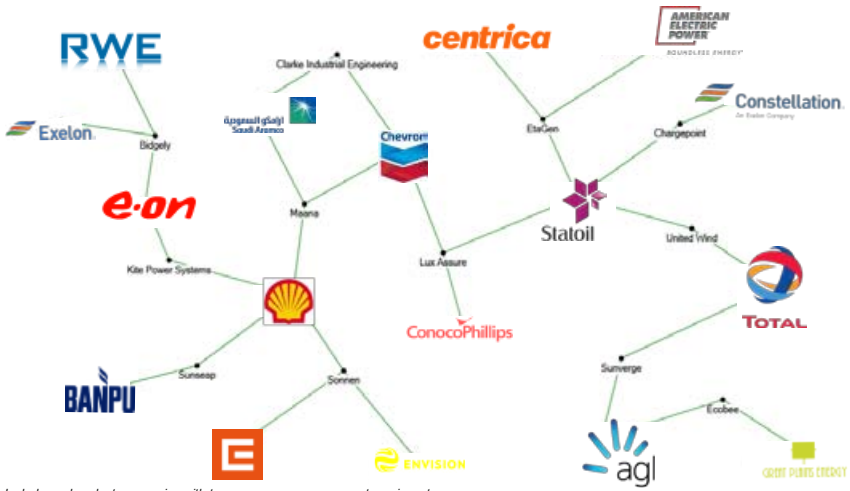
Many of those commitments (31) went to emerging enterprises from the same sector – mostly renewable energy and energy storage technologies, along with core oil and gas applications – but the remainder went to companies developing other technologies favouring synergies with the energy sector – 18 deals in transport, mostly autotech innovations in electric vehicles as well as vehicle



SECTOR FOCUS

marketplaces, 14 in IT, mostly internet-of-things (IoT) applications, cybersecurity and data analytics, and nine in industrials, advanced materials, drones, robots and other industrial applications. Most notable is the interest in electric mobility – potentially a significant disruptor for the oil and gas industry and its downstream fuel products.

Co-investments of energy sector venturers 2016-18

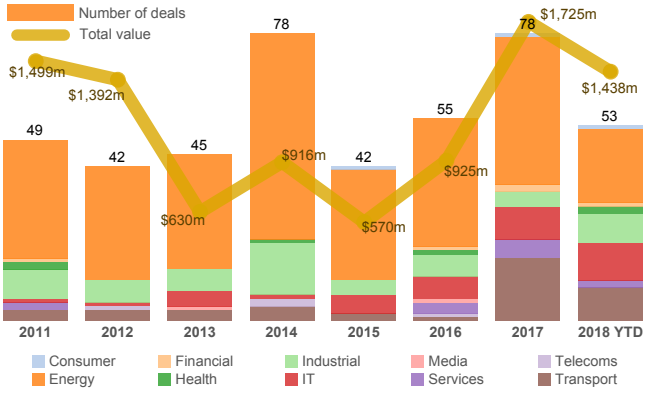


Includes only select companies with two or more energy corporate co-investors

The network diagram showing co-investments among energy corporates, illustrates the spectrum of their investment interests. Commitments range from charging stations for electric vehicles (Chargepoint) and lithium-based energy storage (Sonnen) through energy management systems (Sunverge), solar power producers (Sunseap), wind energy technology developers and providers (United Wind, Kite Power Systems), chemical products developers (Lux Assure), analytics software (Maana) and thermostat maker (Ecobee).

On a calendar year-on-year basis, total capital raised in corporate-backed rounds went up significantly from $925m in 2016 to $1.72bn in 2017, an 86% surge. The deal count also rose 41% from 55 deals in 2016 to 78 in 2017.

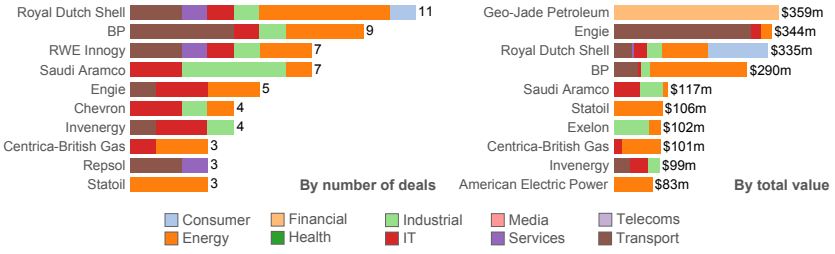
Deals by energy corporates 2011-18



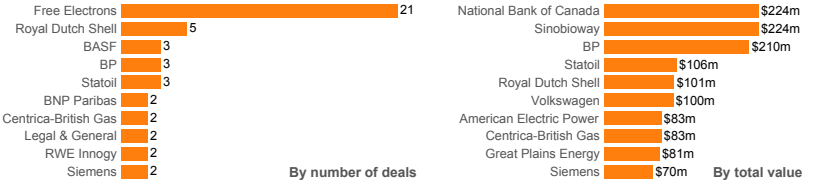
The 10 largest investments by corporate venturers from the energy sector were spread across various industries.

The leading corporate investors were oil and gas companies Royal Dutch Shell, BP and electricity and gas company RWE, accounting for the largest number of deals. Energy corporates committing capital in the largest rounds were led by oil exploration and production firm Geo-Jade Petroleum, along with Engie, Shell and BP.

Top energy sector investors over the past year



Top investors in energy enterprises over the past year



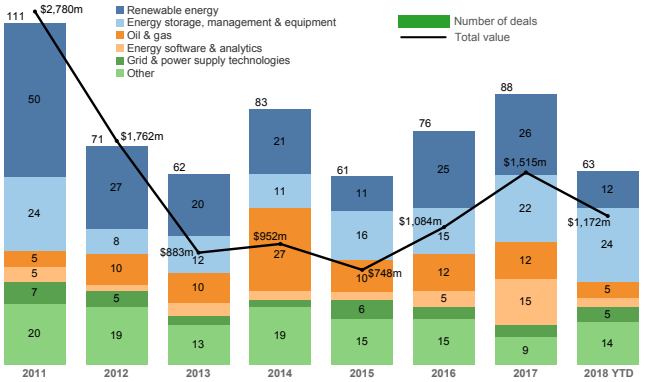
The most active corporate venture investors in emerging energy companies was Free Electrons, an international energy-focused initiative backed by 10 energy utilities, along with Shell, chemical producer BASF and BP.

The rising energy businesses in the portfolios of corporate venturers were varied, encompassing anything from charging stations for electric vehicles (Chargepoint) and energy storage (Sonnen), smart grid applications (Actility), distributed energy management systems (Sunverge, Advanced Microgrid Solutions), solar photovoltaic technology (Heliatek) to biomass conversion technologies (Renmatrix). This is illustrated by the network diagram of corporate co-investments in such companies.

Corporate co-investments in energy enterprises 2016-18

Overall, corporate investments in emerging energy-focused enterprises went up slightly from 76 rounds in 2016 to 88 deals in 2017. Estimated total dollars also increased from $1.08bn to $1.51bn. This trend appears likely to continue, as we have reported 63 such transactions, worth and estimated $1.17bn, by the end of August this year.

Energy sector deals by subsector 2011-18



Deals

Energy sector corporates invested in large multimillion-dollar rounds, raised by a range of enterprises – not only energy tech developers but also industrial, transport, consumer and financial services.

China-based fintech platform Caogen Touzi (CGTZ) secured RMB2.3bn ($359m) in series D funding from a consortium led by Geo-Jade Petroleum. The latter participated through an unnamed industrial fund and was joined by a range of undisclosed existing shareholders. Founded in 2013, CGTZ has developed a range of investment tools for private users and smaller companies. Users can also apply for collateral loans backed by assets such as houses and vehicles, and the company offers consumer instalment credit products in rural areas.

US-based electric scooter provider Gogoro closed a $300m series C round that included Engie, diversified conglomerate Sumitomo and consumer electronics producer Panasonic. The round reportedly valued Gogoro at more than $800m. Singaporean state-owned investment vehicle Temasek also participated. Founded in 2011, Gogoro has developed a smart electric scooter as well as a battery-swapping network for its customers, both of which were launched in Taipei, capital of Taiwan, in 2015. The company has since sold 34,000 scooters and established more than 400 battery-swapping stations across Taiwan and Europe.

Oil and gas supplier BP is investing $200m in UK-based solar power project developer and operator Lightsource over a three-year period as part of a strategic partnership. BP's investments will eventually give it a 43% stake in Lightsource, which will be renamed Lightsource BP, and two seats on its board. Founded in 2010, Lightsource develops and operates utility-scale solar projects. It has brought 290 solar photovoltaic projects online amounting to 1.3GW of capacity in the UK, and manages about 2GW of energy through operations and maintenance agreements.

China-based industrial e-commerce platform Zhenkunhang raised $129m in a series C round co-led by Legend Capital, the venture capital firm formed by conglomerate Legend Holdings, and Tiger Global Management. The round included Shell China, Shell's local subsidiary, and Oriza Holdings, the investment arm of Suzhou Industrial Park. Founded in 1996, Zhenkunhang operates an e-commerce marketplace that sells industrial products such as tools and consumables for maintenance, repair and operation.

Canada-based smart thermostat producer Ecobee closed a $97m series C round after securing C$47m ($36m) in an extension that featured power company AGL Energy. It had initially raised $61m in the round, led by Energy Impact Partners, a private equity firm backed by AGL, and featuring the Amazon Alexa Fund, an investment vehicle of e-commerce

SECTOR FOCUS

Top 10 deals by energy sector corporate investors over the past year

Company	Location	Sector	Round	Size	Investors
Caogen Touzi	China	Financial	D	$359m	Geo-Jade Petroleum | undisclosed investors
Gogoro	US	Transport	C	$300m	Engie | Generation Investment Management | Panasonic | Samuel Yin | Sumitomo | Temasek
Lightsource	UK	Energy	–	$200m	BP
Zhenkunhang	China	Consumer	C	$129m	Eastern Bell Venture Capital | Legend Holdings | Matrix Partners | Oriza Holdings | Royal Dutch Shell | Tiger Global Management
Ecobee	Canada	Energy	C	$97m	Amazon | Energy Impact Partners | Export Development Canada | Great Plains Energy | Northleaf Capital Partners | Ontario Capital Growth Corporation | Relay Ventures | Tech Capital | Thomvest Ventures | AGL Energy | Caisse de dépôt et placement du Québec | Business Development Bank of Canada
EtaGen	US	Energy	C	$83m	American Electric Power | Centrica-British Gas | Independent | KCK Group | Khosla Ventures | Statoil
PrecisionHawk	US	Industrial	–	$75m	Comcast | DuPont | Exelon | Innovate Indiana Fund | Intel | Millennium Technology Value Partners | NTT Docomo | Senator Ventures | Syngenta | Third Point Ventures | USAA | Verizon | Yamaha
Sonnen	Germany	Energy	–	$70m	Royal Dutch Shell | undisclosed investors
Sunseap	Singapore	Energy	C	$56m	Banpu
Commonwealth Fusion Systems	US	Energy	–	$50m	Eni

firm and cloud computing provider Amazon. Caisse de dépôt et placement du Québec and Business Development Bank of Canada, both government-backed financial institutions, also joined the round. Founded in 2007, Ecobee has developed a smart thermostat that measures room temperature and detects how many people are in a room. The company has also introduced a smart light switch.

US-based electrical generator producer EtaGen completed an $83m series C round, which featured wind turbine services provider KCK Group and energy company American Electric Power, UK-listed energy utility Centrica as well as oil and gas company Statoil. Centrica and Statoil took part through their Centrica Innovations and Statoil Energy Ventures units. Founded in 2010, EtaGen provides linear generator systems to commercial business customers which produce electricity by combining air and fuel to push magnets through copper coils. The systems are scalable and come in 250kW and 750kW packages.

US-based drone technology producer PrecisionHawk raised $75m in a round featuring a number of corporate venturers, including energy company Exelon. Mass media group Comcast, Exelon and semiconductor technology provider Intel invested through respective subsidiaries Comcast Ventures, Constellation Technology Ventures and Intel Capital. Agribusiness Syngenta, chemicals producer DuPont and telecoms firms Verizon and NTT Docomo, meanwhile, participated through their Syngenta Ventures, DuPont Ventures, Verizon Ventures and NTT Docomo Ventures units. Automotive manufacturer Yamaha Motor and insurance company USAA also chipped in. Founded in 2010, PrecisionHawk has created an enterprise software platform that can be used to control unmanned aerial vehicles and enable users to process, model and analyse data collected by the drones. The software also offers the ability to fly drones on autopilot.

Germany-based energy storage system developer Sonnen completed a €60m ($70m) funding round led by Shell Ventures, Shell's corporate venture capital arm. The identities of the other participants in the round were not confirmed, but Sonnen CEO Christoph Ostermann stated that it received backing from all its investors. Founded in 2010 as Sonnenbatterie, Sonnen has created a home energy storage and management system designed to work in tandem with solar panels. It also runs a community scheme where owners of its systems can share their surplus solar energy to save money.

Singapore-based cleantech developer Sunseap obtained S$75m ($56m) from energy company Banpu in a series C extension, bringing the round's total to at least $60.8m. Shell Ventures supplied an undisclosed sum as part of a partnership agreement to develop solar projects in the Asia-Pacific region. Sunseap had raised a first $4.8m tranche from a consortium led by building maintenance company IsoTeam. Sunseap operates solar energy systems, providing renewable energy to its clients through solar farms. The company is also working on an energy management platform and is looking into the use of batteries.

Commonwealth Fusion Systems (CFS), a US-based fusion power technology developer emerging from Massachusetts Institute of Technology's The Engine accelerator, raised $50m in funding from energy supplier Eni. The company is hoping to attract additional investors, though a target size for the round was not revealed. CFS is working on fusion technology, which imitates the process by which the sun produces energy. Researchers have so far failed to create a workable approach to fusion power at scale. Theoretically it offers unlimited carbon-free safe energy.

There were other interesting deals in emerging energy-focused businesses that received financial backing from corporate investors from other sectors.

Enerkem, a Canada-based developer of a process that converts waste to biofuel, secured C$280m from investors including waste management services provide Waste Management of Canada and industrial conglomerate Sinobioway. Financial services firm National Bank of Canada also took part. Founded in 2000, Enerkem produces biofuels and

Top 10 investments in emerging energy enterprises over the past year

Company	Location	Round	Size	Investors
Enerkem	Canada	–	$224m	BlackRock | Braemar | Cycle Capital | Fondaction CSN | Fonds de solidarité FTQ | Investment Quebec | National Bank of Canada | Rho Canada Ventures | Sinobioway | Waste Management of Canada | Westly Group
Lightsource	UK	–	$200m	BP
Zhaoyouwang	China	C	$150m	DCM | GGV Capital | Global Logistics Providers | Oceanpine Capital | Rainbow Capital | Sky9 Capital | Susquehanna International Group | Tide Capital | Yunqui Partners
QuantumScape	US	–	$100m	Volkswagen
Ecobee	Canada	C	$97m	Amazon | Energy Impact Partners | Export Development Canada | Great Plains Energy | Northleaf Capital Partners | Ontario Capital Growth Corporation | Relay Ventures | Tech Capital | Thomvest Ventures | AGL Energy | Caisse de dépôt et placement du Québec | Business Development Bank of Canada
EtaGen	US	C	$83m	American Electric Power | Centrica-British Gas | Independent | KCK Group | Khosla Ventures | Statoil
Sonnen	Germany	–	$70m	Royal Dutch Shell | undisclosed investors
Sila Nanotechnologies	US	D	$70m	Amperex Technology | Siemens | Sutter Hill Ventures
Forsee Power	France	–	$65m	European Investment Bank | Idinvest Partners | Mitsui
Sunseap	Singapore	C	$56m	Banpu

chemicals such as methanol and ethanol from solid waste using a proprietary system.

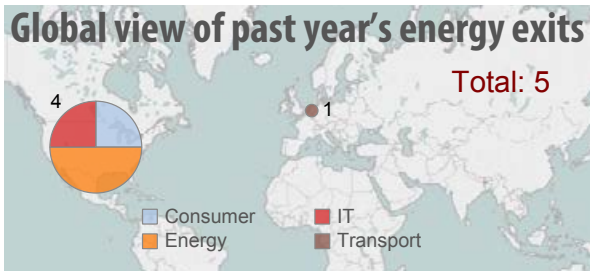
China-based business-to-business fuel trading platform Zhaoyouwang secured $150m in a series C round co-led by logistics services provider GLP and private equity firm Rainbow Capital. SIG Asia Investments, a subsidiary of technology and trading firm Susquehanna International Group, also took part, among other investors. Founded in 2015 as 51zhaoyou.com, Zhaoyouwang runs an online marketplace where enterprise customers can trade diesel, gasoline and kerosene. The platform also offers fuel-related logistics and financial services. The company is currently active in more than 50 Chinese cities.

Automotive manufacturer Volkswagen committed $100m to US-based advanced battery developer QuantumScape as part of a strategic collaboration deal. Founded in 2010 as a spinout from Stanford University, QuantumScape is working on solid-state batteries that use solid electrolytes, as opposed to the liquid or polymer electrolytes in lithium batteries. The technology could be used to create batteries with a higher energy density, equating to increased capacity, making them more compact, safer to use and quicker to charge.

Industrial technology and appliance producer Siemens and lithium-ion battery manufacturer Amperex Technology participated in a $70m series D round for US-based advanced battery technology developer Sila Nanotechnologies. Siemens invested through its Next47 unit. Venture capital firm Sutter Hill Ventures led the round. Founded in 2011, Sila has developed silicon-dominant anode technology that can be inserted into existing battery manufacturing systems, replacing graphite and allowing for higher density in battery cells. The materials are intended for use in batteries serving the portable electronics, electric vehicle, grid-scale energy storage and, eventually, battery-powered flight markets.

France-based battery technology developer Forsee Power raised €55m from diversified conglomerate Mitsui, private equity firm Idinvest Partners and the EU-owned European Investment Bank. Forsee develops, builds, installs and maintains smart lithium-ion battery systems for electric transport, energy storage, and portable and mobile equipment producers. The company also provides leasing options through a partnership with Neot Capital.

Exits



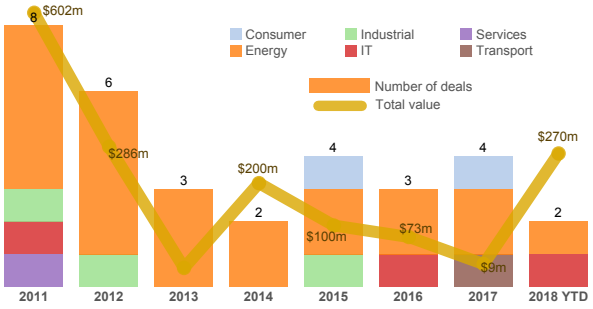
Corporate venturers from the energy sector completed five exits between September last year and August this year, including four acquisitions and one IPO. On a calendar year-on-year basis, GCV reported four exits in 2017, the same as the number tracked in 2015. Given the limited number of exits with reported sizes, it is hard to draw a conclusion on trends in terms of the total estimated exited capital.

Bloom Energy, a US-based fuel cell energy system producer backed by energy utility Eon, raised $270m in its IPO on the New York Stock Exchange. The company issued 18 million shares priced at the top of its $13 to $15 range. Founded in 2001 as Ion America, Bloom Energy provides a stationary power generation device called the Bloom Energy Server, which can produce baseload power from flexible lithium-ion batteries at any time. The systems are usually used to supplement renewable energy systems at corporate buildings. Bloom often partners with utilities that purchase the systems to charge users directly for the electricity they generate.

SECTOR FOCUS

Lock manufacturer Assa Abloy agreed to acquire US-based smart lock producer August Home for an undisclosed amount, enabling a number of corporates to exit. Those included energy supplier AGL, insurance firm Liberty Mutual, Comcast Ventures and Qualcomm Ventures, respective subsidiaries of telecoms company Comcast and chipmaker Qualcomm. SanDisk Ventures, CAA Ventures and SingTel Innov8, the corporate venturing units of data storage provider SanDisk, talent agency CAA and telecoms group SingTel, and Japanese telecoms company KDDI were other exiting investors. Founded in 2013, August Home provides smart locks operated through mobile devices. The company's products are compatible with Google Home, Amazon Alexa, Apple HomeKit and other smart home hubs.

Exits by energy corporates 2011-18



KDDI agreed to acquire US-headquartered solar power system provider and portfolio company Fenix International for an undisclosed amount, providing exits to industrial group Schneider Electric and telecoms firm Orange. Founded in 2009, Fenix provides small-scale solar energy systems to customers in developing nations. The company operates i mainly n Uganda, where it has some 140,000 customers, but is also present in Zambia and intends to expand to other African nations.

NewMotion, a Netherlands-based electric vehicle charging station operator backed by vehicle distributor AutoBinck, was acquired by Shell for an undisclosed amount. AutoBinck previously contributed to a funding round of undisclosed size alongside energy distributor Alliander, sustainable technology holding company Tendris and Entrepreneurs Fund. Founded in 2009, NewMotion has more than 50,000 charging points in 22 countries. The stations draw their power primarily from renewable energy sources, and corporate clients with vehicle fleets can track each driver's use through a cloud-based platform.

SpaceTime Insight, a US-based industrial IoT developer backed by Eon and IT services provider NEC, was acquired by communications technology producer Nokia for an undisclosed amount. Founded in 2008, SpaceTime Insight has developed a real-time visual analytics platform that relies on machine learning and industrial IoT applications to automate the optimisation of physical assets and predict asset failure across large networks. Nokia expects the acquisition to strengthen its IoT software and analytics offering and enable it to enter verticals such as energy, logistics, transportation and utilities.

Top exits by energy sector corporate investors over the past year

Company	Location	Sector	Exit type	Acquirer	Size	Investors
Bloom Energy	US	Energy	IPO		$270m	Advanced Equities | Alberta Investment Management Corporation | Apex Venture Partners | Credit Suisse | DAG Ventures | Eon | Goldman Sachs | GSV Capital | Kleiner Perkins Caufield & Byers | Madrone Capital Partners | Mobius Venture Capital | Morgan Stanley | New Enterprise Associates | New Zealand Superannuation Fund | SunBridge | undisclosed investors
LevelUp	US	Financial services	Acquisition	Grubhub	$390m	Alphabet | Balderton Capital | CentroCredit Bank | Continental Advisors | Deutsche Telekom | Highland Capital Partners | JPMorgan | Transmedia Capital | US Boston Capital
Cloudmark	US	IT	Acquisition	Proofpoint	$110m	Ignition Partners | Industry Ventures | Nokia | Sumitomo | Summit Partners
Korbit	South Korea	Financial services	Acquisition	Nexon	$80m	Bam Ventures | Pantera Capital | SoftBank | angel investors
August Home	US	Consumer	Acquisition	Assa Abloy	–	AGL Energy | Comcast | Creative Artists Agency | KDDI | Liberty Mutual | Qualcomm | Sandisk | Singtel (Innov8)
Fenix International	US	Energy	Acquisition	Engie	–	Engie | Orange | Schneider Electric
NewMotion	Netherlands	Transport	Acquisition	Royal Dutch Shell	–	Alliander | AutoBinck | Doen Participaties | Egis Capital Partners | Entrepreneurs Fund | Tendris | undisclosed strategic investors
Space-Time Insight	US	IT	Acquisition	Nokia	–	ClearSky Power and Technology Fund | EnerTech Capital | Eon | NEC | Novus Energy Partners | Opus Capital | Start Up Farms International | Zouk Capital
Nominum	US	IT	Acquisition	Akamai	–	Advanced Technology Ventures | Bessemer | Globespan Capital PArtners | Innoven Capital | Juniper Networks | Morgenthaler Ventures | Verisign

Exits from energy enterprises over the past year

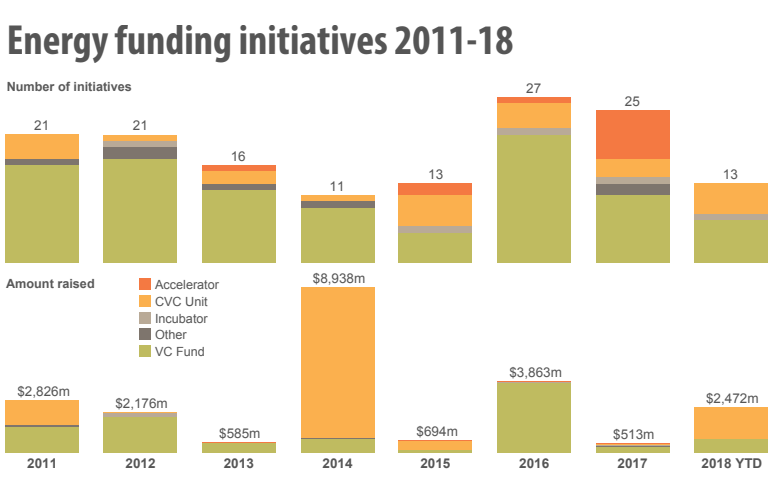
Company	Location	Exit type	Acquirer	Size	Investors
Bloom Energy	US	IPO		$270m	Advanced Equities | Alberta Investment Management Corporation | Apex Venture Partners | Credit Suisse | DAG Ventures | Eon | Goldman Sachs | GSV Capital | Kleiner Perkins Caufield & Byers | Madrone Capital Partners | Mobius Venture Capital | Morgan Stanley | New Enterprise Associates | New Zealand Superannuation Fund | SunBridge | undisclosed investors
PowerbyProxi	New Zealand	Acquisition	Apple	$100m	Samsung | TE Connectivity
Fenix International	US	Acquisition	Engie	–	Engie | Orange | Schneider Electric
Chargemaster	UK	Acquisition	BP	–	Beringea | BMW | ProVen Growth | Qualcomm

GCV also reported a number of exits from emerging energy-related enterprises that involved corporate investors from other sectors.

Consumer electronics producer Samsung and sensor manufacturer TE Connectivity exited New Zealand-based wireless charging developer PowerbyProxi following its acquisition by computing company Apple, reportedly for at least $100m. While the exact figure was not confirmed, the deal's minimum value was confirmed by the New Zealand government's Overseas Investment Office. Founded in 2007 as a spinout from University of Auckland, PowerbyProxi has been developing wireless charging technology for a range of battery powered devices including sensors, robotics and medical equipment.

BP agreed to acquire Chargemaster, a UK-based operator of a network of electic vehicle charging points, for an undisclosed amount, allowing automotive manufacturer BMW to exit. Founded in 2008, Chargemaster designs, builds and installs chargers, operating a 6,500-strong network of charging points across the UK, both public and home systems. It generates revenue through a mix of subscription and pay-as-you-go fees. BP made the acquisition to support the installation of charging points on its garage forecourts.

Funds



Between September 2017 and August 2018, corporate venturers and corporate-backed VC firms investing in the energy sector secured over $2.39bn in capital via 19 funding initiatives, which included 10 VC funds, five new venturing units, two accelerators, one incubator and one other initiative.

On a calendar year-to-year basis, funding initiatives decreased slightly in number from 27 in 2016 to 25 last year. Total estimated capital also went down from $3.86bn in 2016 to just $513m in 2017, but it seems to be rebounding in 2018 with $2.47bn raised by the end of August.

China-based oil, gas and chemicals supplier Sinopec formed investment firm Sinopec Capital, equipped with RMB10bn. Sinopec Capital will invest in emerging areas such as new energy, advanced materials, artificial intelligence and smart manufacturing and supply chain technologies. Although Sinopec did not state explicitly that the vehicle will invest in startups, its activities will cover equity investments and management as well as project investments and asset management. The fund will get 49% of its capital from oil and gas refiner Sinopec Corp and the remaining 51% from parent company Sinopec Group, which also produces a range of petroleum-related products.

Total Energy Ventures, the corporate venturing subsidiary of oil and gas company Total, agreed to form a RMB1.5bn fund in partnership with two other investors – private equity firm Cathay Capital and Hubei High Technology Investment Guiding Fund Management, a fund overseen by the government in the Chinese province of Hubei. The two will provide RMB300m each for the fund. Cathay Smart Energy Fund will target China's new energy sector and will invest in areas such as renewable energy, energy storage, distributed energy, smart energy, internet-connected energy and low-carbon technologies.

UK-based venture capital fund AP Ventures was launched with $200m, half of which came from Anglo American Platinum, a subsidiary of mining company Anglo American. The rest came from AP Ventures' other cornerstone investor, South African government-owned asset management firm Public Investment Corporation. AP Ventures will invest in

Energy sector funding initiatives over the past year

Funding initiative	Type	Funds raised	Location	Investors	Focus
Sinopec Capital	CVC unit	$1.48bn	China	Sinopec Engineering Group	Energy, IT, industrial, services
Cathay Smart Energy Fund	VC fund	$239m	China	Cathay Capital | Total | Hubei High Technology Investment Guiding Fund Management	Energy
AP Ventures	CVC unit	$200m	UK	Anglo American | Public Investment Corporation	Energy
Unnamed Westly Fund	VC fund	$150m	US	Westly Group | Duke Energy | RWE Innogy | CLP Group | American Electric Power | Chubu Electric Power | Bridgestone Corporation	Energy
Unnamed SSC fund	VC fund	$150m	Singapore	Spring Seeds Capital | Trendlines Medical-K2 Global |IMC Group | Heritas Capital | Armstrong Industrial	Energy, industrial, health
Inven Capital	VC fund	$118m	Czech Republic	Čez | European Investment Bank	Energy
Future Energy Fund	VC fund	$100m	US	Chevron	Energy
Navitas Capital II	VC fund	$60m	US	Navitas Capital | Equity Residential | Saint Gobain | Jones Lang LaSalle | Divco West Real Estate Services	Services, industrial, energy, consumer
Capricorn Sustainable Chemistry Fund	VC fund	$60m	Belgium	Capricorn Venture Partners | Siam Cement Group	Industrial, energy
Unnamed Bharat Fund	VC fund	$50m	India	Bharat Innovations Fund | Philips | ICICI Lombard | Bajaj Electricals | RBL Bank | Small Industries Development Bank of India	Industrial, financial, energy

companies developing technologies or products that make use of platinum group metals, including systems that can help integrate renewable energy or mitigate the effects of population growth. Areas that could be covered by this brief include hydrogen infrastructure, energy storage, fuel cell-based electric mobility, water purification, medical devices, sensors and durable electronics. The fund will be based in London.

US-based venture capital firm Westly Group raised $130m for its latest fund, with several corporates among the limited partners. Duke Energy and RWE Innogy were among the anchor investors, and investors include fellow energy utilities CLP Group, American Electric Power and Chubu Electric Power as well as tyre manufacturer Bridgestone. Founded in 2007, Westly focuses on energy, transportation and smart building technology developers. The fund will provide between $3m and $5m per investment.

Industrial equipment maker Armstrong Industrial Corporation was one of nine partners joining Spring Seeds Capital, the venture capital branch of government agency Spring Singapore, for a S$200m co-investment scheme. Spring Singapore put up S$100m of capital for the initiative, which will provide funding for startups over eight years. The partnership will invest in advanced manufacturing and engineering, health and biomedical sciences, and urban and sustainability technology developers.

Czech Republic-based energy utility Čez and the EIB agreed to invest €50m each in Inven Capital, the venture capital fund formed by Čez. The funding will be aimed at cleantech and smart energy developers, particularly small and medium-sized enterprises as well as midcaps – companies with a market capitalisation of $2bn to $10bn. Inven Capital generally invests between €3m and €20m and targets technologies such as distributed power generation, energy efficiency, energy storage and flexible transmission, clean transport and smart cities.

Chevron Technology Ventures (CTV), the strategic investment arm of the oil and gas producer, launched the $100m Future Energy Fund to back energy transition technology. CTV was founded in 1999 and targets developers of technologies such as emerging materials, power systems, water management, IT, and oil and gas production improvement. It also invests in strategically relevant VC funds. Future Energy Fund will concentrate on energy generation technologies that generate lower carbon emissions, or which can reduce emissions from oil and gas production *(see interview)*.

Navitas Capital, a US-based venture capital firm focusing on the real estate and construction industries, closed its second fund at $60m. Investors include construction materials supplier Saint-Gobain, real estate management and investment firms JLL and Divco West Real Estate Services, as well as apartment owner and manager Equity Residential. Navitas targets energy and software companies in the construction and real estate sectors and invests up to $5m in developers of technologies such as smart systems, energy and heat efficiency, advanced materials and workflow management software.

India-based VC firm Bharat Innovation Fund (BIF) raised $50m from investors including electronics producer Philips, insurance provider ICICI Lombard and electrical equipment manufacturer Bajaj Electricals. Financial services firm RBL Bank and the Indian government-owned development financial institution Small Industries Development Bank of India also contributed, the latter through its Fund of Funds for Startups. BIF, an affiliate of Indian Institute of Management Ahmedabad's Centre for Innovation Incubation and Entrepreneurship, is targeting a $100m final close, according to press reports.

People

Cory Steffek left Saudi Aramco Energy Ventures (SAEV), the corporate venturing arm of petroleum producer Saudi Aramco, where he was a managing director, to join US-based private equity investment platform Ara Partners, which focuses on lower middle-market investments in the energy, industrial and infrastructure industries. Steffek joined SAEV in 2012 and was based in Houston, Texas.

Jonathan Tudor left BP, where he was managing director of its BP Ventures unit, to head a corporate venturing subsidiary of Centrica. Tudor was venture director at Castrol InnoVentures, a division of BP, before its reorganisation into BP Ventures. He previously worked at lubricants provider Castrol. Following three years at glass manufacturer Schott, Tudor's initial move into investing was as an investment director at government technology contractor Qinetiq's venture capital arm, Qinetiq Ventures, from 2002 to 2007.


Tudor

Girish Nadkarni, formerly president of Switzerland-based power and automation group ABB's corporate venturing unit, ABB Technology Ventures, has joined France-based Total to lead its corporate venturing subsidiary TEV. Nadarkani moved to Paris as president at TEV. Francois Badoual, former chief executive of TEV in France, moved to San Francisco as president of Total New Energies Ventures USA. Before setting up ABB Technology Ventures, Nadkarni was senior vice-president of ABB's robotics division. He also worked at venture capital firm View Group, and as an entrepreneur at startups VSimplify and Uniprise.


Nadkarni

Lisa Lambert, former managing partner at venture capital firm Westly Group, rejoined the corporate venturing community as senior vice-president and chief technology and innovation officer at UK and US-listed energy utility National Grid. Before joining Westly two years ago, Lambert worked at Intel for 19 years as vice-president and managing director of corporate venturing unit Intel Capital's software and services group. She was also founder and managing director of Intel Capital's Diversity Fund.


Lambert

Imran Kizilbash left his position as vice-president and treasurer at US-based oil services provider Schlumberger. A former colleague said he would remain close to Schlumberger Technology Investments (STI) after his departure. STI expanded into categories such as renewables, software and the IoT under Kizilbash's leadership.

After four years as deputy director of corporate venture capital at Engie, Eric Vincent has become a partner at France-based venture capital firm Demeter Partners. Earlier this year, the city of Paris chose Demeter to manage its €200m Paris Green Fund, making minority investments in buildings, mobility, energy, air, waste and digital technologies. At Engie, Vincent was deputy director of Engie New Ventures, investing in decentralised power generation, alternative fuels, energy management, smart grids, energy efficiency, home comfort, mobility and smart cities technologies.


Kizilbash

Swati Dasgupta has left Next47, a subsidiary of industrial conglomerate Siemens, to be a director at National Grid Ventures, the strategic investment arm of National Grid Group. The unit oversees investments in technology startups, energy projects and partnerships on behalf of its parent. Before joining Next47 as a director in 2017, Dasgupta was a director of external innovation at Siemens' technology-to-business unit from 2013. She previously spent nearly a decade as a partner at IBM Venture Capital Group, a corporate venture capital subsidiary of the computing technology producer.

Mike Adams became a US-based director of corporate ventures at Germany-based air and water filter provider Mann&Hummel Group. Adams was previously a principal for just over four years at 8 Rivers Capital, an energy, sustainability, transport and communications technology developer. Before that he was managing director of technology ventures at energy provider Constellation Energy.


Joaug

VC firm Aster Capital hired Jérome Joaug as a principal on its investment team to focus on the mobility, energy and industry sectors. Joaug is a serial entrepreneur who co-founded graphene producer Cambridge Nanosystems, a spinout from University of Cambridge, and IoT platform Nymbly. He is a graduate of both Cambridge and École Polytechnique. Aster Capital emerged out of Schneider Electric Ventures, the corporate venturing arm of industrial group Schneider Electric, becoming independent in 2010 and attracting equipment provider Alstom and chemicals company Solvay as limited partners.


Karapataki

Christina Karapataki left her venture principal position at Schlumberger Technology Investments, to join venture capital fund Breakthrough Energy Ventures, an investor-led fund made up of members of the Breakthrough Energy Coalition, guided by scientific and technological expertise and committed to "investing patiently in developing new ways to live, eat, travel and build". The coalition's leadership is made up of entrepreneurial investors and scientists. The fund targets early-stage innovations in emissions-free energy, agriculture and consumer goods. While at Schlumberger, Karapataki was responsible for sourcing opportunities, technical evaluation and structuring joint development agreements, in addition to overseeing about half of Schlumberger's portfolio companies. ◆

University and government backing for energy businesses

By the end of August this year, almost as many rounds had been raised by university spinouts (19) in the energy sector as in the entirety of 2017 (20). The estimated total capital deployed in those rounds was $179m, considerably higher than last year's $45m.

SolidEnergy Systems, a US-based lithium-metal battery technology developer spun out of Massachusetts Institute of Technology, closed a $34m series C round. The company did not disclose the participants in the round, which it said increased its overall funding to more than $50m since it was spun out in 2012. SolidEnergy is working on rechargeable semi-solid lithium-metal cells that could be produced using existing lithium-ion manufacturing technology. The company plans to expand its manufacturing capability both internally and through cell manufacturing partners.

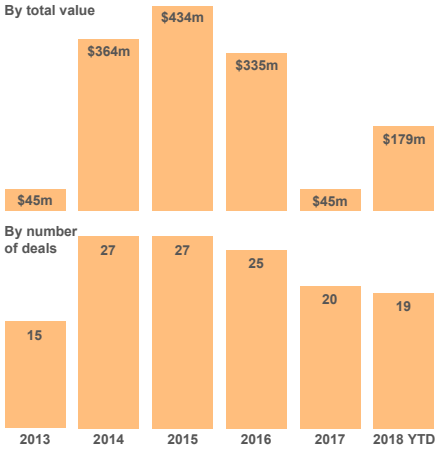
UK-based energy distribution management software developer Origami Energy closed an £18.6m ($26.3m) series B round with a consortium featuring Cambridge Innovation Capital, the patient capital fund affiliated with University of Cambridge. The round also featured power production services provider Aggreko, as well as unspecified subsidiaries of shipping group Fred Olsen and investment firm Octopus Ventures. Founded in 2013, Origami Energy has developed technology to monitor and control energy distribution flows remotely in real-time. The system can facilitate the integration of renewable energy and batteries, while helping wholesalers spot opportunities during day-to-day market trading.

Government investments in energy enterprises, reported by our sister publication, Global Government Venturing, reached a peak at 54 rounds in 2015 but have since declined to 36 and 35 in 2016 and 2017 respectively. However, the estimated total capital in such rounds reached $2.77bn last year and appears to be on an upward path. So far this year, GGV has reported only nine government-backed rounds in emerging energy businesses, but the estimated capital involved amounts to $1.02bn. Innovations in the energy sector are naturally attractive to government and related investors, as the sector is instrumental for growth of virtually all other industries.

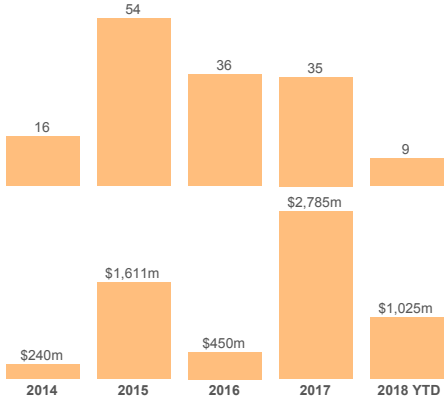
Clean energy technology developer Cypress Creek Renewables, a US-based clean energy technology company, received investment worth $200m from a group that included Singaporean government agency Temasek. Founded in 2014, Cypress Creek Renewables develops solar energy facilities, using a data-driven approach, and partners landowners, communities, utility companies and other stakeholders to develop underutilised land on which it builds solar farms ranging from 2MW to 20MW.

Canada Pension Plan Investment Board agreed to pay $144m for a 6.3% stake in ReNew Power, an India-based renewable power producer. The board, which manages funds on behalf of the government's Canada Pension Plan, acquired the shares from the multilateral Asian Development Bank, which had invested $50m in ReNew as part of a $140m round in 2014. ReNew, which is also backed by corporate joint venture Jera, develops renewable energy projects and has built a 2GW portfolio of wind farms, utility-scale solar plants and rooftop solar power systems. ◆

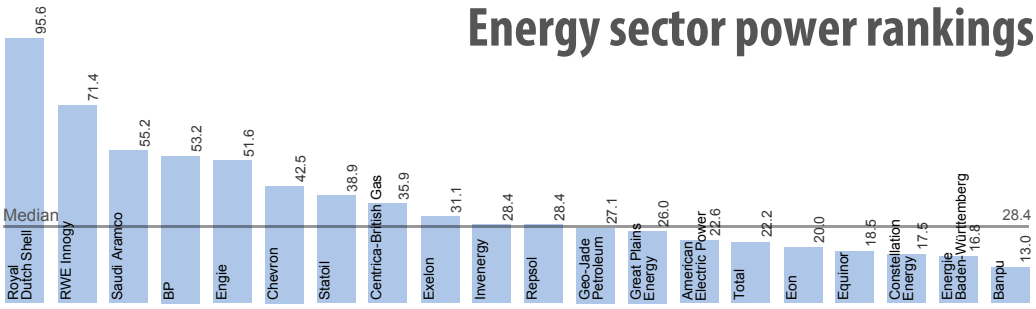
Deals in university spinouts in the energy sector 2013-18



Government-backed deals in energy 2014-18



Energy sector power rankings



Interview: BP Ventures in China – land of opportunity

Tom Whitehouse, contributing editor, spoke to Jin Hu, BP Ventures' Shanghai-based China lead, about how she is readapting to her country of birth after 16 years in the UK. Hu also set out the strategic rationale behind BP's $10m backing of Nio Capital and pledged to demonstrate value to venture investors in China.

How does it feel going back to China after so long in the UK?

I have been living happily in the London-centric "global citizenship bubble" for the past 16 years. The UK is very international and BP is very inclusive and diverse. China is, of course, no less global in its outlook but it has a different feel and a very different tempo. For non-Chinese corporates to venture there, it requires adaptation to the local culture. And yes, even though I was born in China, I feel that I now have to adapt or perhaps readapt. I am walking this journey with a BP Ventures hat on.

What is BP Ventures' approach to China?

BP is known in the energy sector in China and enjoys a good reputation. So it is not as if we have a standing start. Globally, BP Ventures has a reputation for creating strategic value as a corporate VC but we need to demonstrate our value to China. This is true for any corporate VC operating in any part of the world, but it is particularly true in China because the local VCs are so active and it is so difficult for non-Chinese investors to get to the table to see the best deals. One of our first investments was in Nio Capital, a Chinese venture company that shares our focus on mobility and advanced energy transition. This is an important step for us.

What is the rationale for your investment in Nio Capital, and what strategic value do you bring?

Nio Capital's roots are very interesting. First, there was Nio, a very successful Chinese car company that was backed by leading Chinese VCs. Nio's founder, William Li, had previously built a successful internet company, which he took to IPO in the US. So he brings a fresh perspective to mobility. And now he has founded a venture firm, Nio Capital, which I believe extends this fresh approach to investing in startups.

I am not saying that the traditional original equipment manufacturers have less to offer. They have plenty to offer, and we hope also to collaborate with them.

Right now there is a good fit for us with Nio Capital. It shares the same focus on the new-energy vehicle ecosystem, including advanced mobility and smart energy. Their management team includes individuals with strong experience and background. We can be an effective partner to them. In addition to capital, we bring knowledge and experience of energy and advanced mobility from around the world. We can also give Chinese businesses a platform to expand outside China.

Are you looking at direct investment opportunities?

Of course. We are filling our pipeline and are working on a number of deals we expect to close soon. Our first investments are likely to be in early-stage companies in the new-energy value chain rather than in completely new groundbreaking technologies. We will also be supporting incubators, so we can get an early view on potential investments.

This year, we sponsored the 2018 China Cleantech competition run by TusStar, one of the best-known networks rooted in Tsinghua University, together with ADB Bank. Besides its financial sponsorship, BP Ventures also brought a new set of exciting startups and Chinese VCs to the launch event. Overall, our venturing in China will be like the approach that BP has taken in other parts of the world, where we have developed relationships with great local venture and incubator partners, and where we make direct investments.

Why is BP ventures now prioritising China?

There is a lot of passion and energy in China and new firms can really turn the impossible into the possible, which I guess is what venturing is all about. Chinese consumers are very receptive to new ideas. Entrepreneurs can quickly test technologies and business models and move forward. And the Chinese government is very supportive of innovation,

particularly in our priority areas, low-carbon energy and advanced mobility. In my opinion, China is also the best market to trial new technologies from anywhere in the world. Europe and the US are less open to disruption through rapid adoption and scale-up. Of course, I could be biased.

China tends to divide opinions in the venturing world. Many are still wary. Why is this?

Opinions on China are changing. I heard some VCs describe how easy it is in China for entrepreneurs as it is a lot easier to access money, while others see it as a very difficult environment. The truth is that some VCs came here and did not spend enough time learning and adjusting to the local culture and environment. BP is not going to make this mistake.

What are the long-term plans? You are BP's first venture appointment in Shanghai. Will there be others?

Yes, we will be growing the team, expanding our footprint in China, especially in Beijing and Shenzhen. We have to. I do not expect to find limitations in China. If we cannot do enough deals it will be because of us, because we are not adaptable, agile and fast enough, or because we cannot make our value proposition relevant in this market. ◆

Interview: The future of energy based on inclusion

Tom Whitehouse, contributing editor, interviewed Barbara Burger about Chevron Technology Ventures' new Future Energy Fund and GCV's Venture Houston conference next month, which she is co-chairing and Chevron is co-sponsoring.

What is new about Chevron's new fund?

The investment focus for Future Energy Fund will be different from our earlier funds. It will be focused on technologies that enable emissions reduction in oil and gas operations as well as investments in technologies that may break through or disrupt the energy vertical in the future. We have had investments in this space in the past, but having a parallel fund in our organisation brings specific focus to this area. We will, however, manage the fund using the practices we have developed over nearly 20 years.

Is Chevron's commercial deployment of venture-backed technologies still the ultimate end game?

Our model is to add value to Chevron through being an on-ramp for promising innovators. We find, evaluate and integrate external startup technologies into Chevron. That will not change.

In Europe, energy corporate VCs are increasingly being tasked with helping their parent companies grow their low-carbon and electric mobility businesses. How does it differ for Chevron?

Our objectives for the Future Energy Fund are consistent with our corporate views on the expectations for our industry. We enable human progress by supplying safe, affordable, reliable and ever-cleaner energy.

Chevron Technology Ventures has been active for about 20 years. Is there a cyclical element to the future energy investment theme?

We have watched this space for a long time and have played in some areas before. That experience makes us better informed today. We have monitored the cost curves, the scaling opportunities and the impact of policies. So it is not about us joining a new cycle. We simply believe that now is the right time to build on our participation. And we have become smarter about what it takes to be successful in this area.

In one of your portfolio businesses – Maana – you have co-invested with fellow energy CVCs, but also with Accenture Ventures and new Chinese CVCs. Is this a taste of the future?

We have had a track record of investing with a diverse set of players and we see that as continuing and grow-

ing. There are two reasons. More and more corporations and other businesses are starting venture capital arms, as well as venture investments coming from family offices and other investors, and some of our investments – particularly in the digital realm – cut across industry verticals and thus attract a wide range of interested investors.

What is special about the Houstonian and broader Texan venture ecosystem? How is Chevron helping support and grow the venturing and innovations there?

I will speak to Houston as a city. We have developed a vision and comprehensive strategic plan for growing the innovation ecosystem. It is inclusive rather than being focused on venture-backed startups. It draws on collaboration between government, universities, startups, investors and corporations.

"We have developed a vision and comprehensive strategic plan for growing the innovation ecosystem"

We have a huge number of corporations with a presence in Houston that can provide a built-in customer base for startups, if we have the right relationships. That has not always been done in the past. There is still much that we have to do about it. We have been punching below our weight but there is momentum. And when Houston goes for it, great things happen.

Thanks for supporting our conference again this year. What are your expectations? What should be our objectives and ambitions?

We are happy to see you active in Houston. I do not think your activities should be confined to the west and east coasts. There is a lot happening here. The event should mimic the ecosystem and its inclusiveness. We should include all aspects of the energy vertical, by which I mean all sources, and from generation to use. We need diverse panels, from different parts of the ecosystem so that people from outside the corporations can see how they can plug in.

Fundamentally, we need to be forward-looking. Houston has a great legacy. We put a man on the moon, we have a great history in oil and gas. But we now need to look forward to where the economy is going overall, as well as in our strong sectors of energy, life sciences and space.

You are one of the few women at the top of the CVC industry. What is your advice for corporate VCs seeking to employ more women, and what is your advice for women who want to work in energy venturing?

I think of myself as working in energy more than the corporate venture capital industry, as I have had a long career in Chevron, with the past five years as the president of our technology ventures company. But my advice is no different. For companies, the best way to be inclusive is to be inclusive. When prospective or new employees look up, do they see people that look like them? Second, when they look up and they see people that look different, are those people welcoming? That is diversity and inclusion.

We are working hard on this at Chevron in many dimensions, and while we have made progress, we are not there yet. I view one of my most important responsibilities – and one of my most rewarding ones – as making progress in this area. ◆

Interview: Different horses for different courses

Kaloyan Andonov, reporter, spoke to Geert van de Wouw, vice-president at Shell Ventures, the venturing subsidiary of Anglo-Dutch oil and gas major Shell about the future of energy and how the rebranded venturing arm under his command tackles it.

A year ago, contributing editor Tom Whitehouse and I interviewed Geert van de Wouw about Shell's venturing unit – then Shell Technology Ventures – and the technological challenges for the industry, in light of falling oil prices and damages from hurricane Harvey.

In that interview, van de Wouw said of the future of energy: "The oil and gas industry does not need to be saved. Fossil fuels are here to stay for decades. Today, electricity accounts for only 20% of total energy demand. This will increase with the electrification of our societies, including auto-mobility, but still the fact is that hydrocarbons are a part of the future, whether people like it or not."

That statement struck me as a rather bold one in a time when many like to talk in polite company only about a carbon-free future for the planet. With the impending massification of electric vehicles and battery technologies becoming more efficient, has his position has changed? "Well, I do not change my mind and my position so quickly and easily," he said and laughed.

"We have got emerging solutions in electric mobility, penetrating the customer segment, biofuels being increasingly commercialised and an ever more convincing case for hydrogen as an energy carrier for long-term storage and long-haul trucking, along with developments in solar and wind energy. There is certainly going to be quite a mosaic of energy sources available and I think they will co-exist and be used each for a specific purpose. Different horses for different courses."

One thing that has changed, however, is the brand name of the venturing unit van de Wouw heads. "The rebranding is

SECTOR FOCUS

quite easy to explain. We have been doing investing in business model innovation rather than strictly technologies, as the old name implied. People would just get very confused as our mandate expanded and the name implied a focus on technology only."

Van de Wouw has also been expanding the team significantly since the beginning of 2017. Currently, Shell Ventures has six offices across different geographies – three in the US – Houston, Boston and San Francisco – with teams of three to five people in each, in addition to the unit's offices in London, Shanghai and Amsterdam, where Van De Wouw himself is based, alongside his chief finance officer Robert Linck.

"We have doubled the size of the team since the beginning of 2017 and there has been no shortage of excellent professionals applying to work at Shell Ventures. Many of them come from outside the company, from corporate venturing units, financial VCs or private equity firms, bringing their unique external perspectives to Shell Ventures.

"I believe this is thanks to our reputation as a professional and faithful co-investor, which we have been building over the years. The combination of these seasoned VC professionals and the people in my team that know Shell from the inside has proven to be very effective."

He added: "Diversity of thought is very important to any professional venture capital unit. Through challenging each other's deals, we avoid deal-bias and sharpen our decision making. While at Shell Ventures we already have diversity in terms of geographic and cultural backgrounds, we would like to do better in terms of gender diversity. However, what we found quite difficult in the recruitment process was finding experienced female talent in the venture capital ecosystem, which is – unfortunately – still very male-dominated.

"So I would like to use your magazine as a platform and say that if there are women working in venture capital interested in working for Shell, they should contact me. With closing 22 deals last year, we are one of the most active and diversified corporate investors in the energy industry and otherwise a very diverse and fun team to work in".

Although most of the top 50 corporate venture investors have women in their senior investment ranks, there is still much work to be done to bolster diversity throughout the corporate venture capital community and beyond.

Van de Wouw recognised this and added: "I fully embraced and supported the initiative taken by Wendell Brooks, president of Intel Capital, during the 2018 Global Corporate Venturing & Innovation Summit, when he called on us to hire and mentor the best and the brightest women and underrepresented minorities as part of our growth plans."

Asked about China and its rising innovation culture, Van De Wouw said: "Shell Ventures sees investment opportunities in China in areas like the future of mobility and the scaling of new solar and battery technologies. In many ways, China is at the forefront of electric and autonomous mobility, electric vehicle charging, battery swapping and new mobility concepts. With Shell's downstream businesses, for example, we made a minority investment in HuiBao, an automotive e-commerce platform that links insurance companies with the insured, offering a range of aftermarket products and service, such as car maintenance, financing and auto parts."

This type of investment is made strategically to explore new sales channels, as China is one of Shell's largest growth markets for lubricants. This is not the only business model in which Shell Ventures has invested. US-based online marketplace for auto services and repair Openbay is another, and so is UK-based WhoCanFixMyCar.com, a platform that helps customers compare prices and reputation of garages and mechanics, with more than 8,500 repair shops registered.

Asia-Pacific is one of the most interesting innovation regions for Shell Ventures. Aside from China, van de Wouw speaks fondly of countries such as India and Singapore. "We have, for example, committed capital to Singapore-based solar power utility and retailer Sunseap."

Sunseap operates solar energy farms. The company is also working on an energy management platform and is looking into the use of batteries and floating solar.

SECTOR FOCUS

Also in Asia-Pacific, the Philippines will be the launching pad for one of Shell's soon-to-be-revealed logistics and supply chain spinoffs, Connected Freight. "The startup from our digital businesses unit uses Tiramizoo's software platform to remove inefficiency in inner-city freight movement through the optimisation of goods delivery, allowing dispatchers and logistics companies to share loads, minimise paperwork and optimise their routes. The team is based in the region and is looking to bring expansion to Singapore, multiple cities in the Philippines and across Asia-Pacific."

With a global focus, Shell Ventures and its investment thesis have undergone a notable transformation over the years. Van de Wouw said: "We relaunched Shell Ventures back in 2012 as concentrated primarily on core oil and gas technologies. Two years later we began looking at renewable energy technologies and in 2016 we started to include novel business models in the renewable power domain.

"In 2017, we further expanded our scope to include business models and technologies in the future of mobility. A good example of that is our recent investment in Ample, a rapidly deployable vehicle battery charging solution from California for operators of electric fleets, allowing slow charging and 24/7 availability of battery powered vehicles. To achieve this, Ample uses autonomous robotics and smart battery technology."

Another commitment in this space is NewMotion, a Netherlands-based vehicle charging station operator backed by vehicle distributor AutoBinck, which was acquired by Shell for an undisclosed amount. Founded in 2009, NewMotion enables owners to charge their cars at more than 80,000 charging points in several countries.

Shell Ventures' support for more and cleaner energy has gone global. This includes investing on behalf of Shell's energy access business to back distributed power startups that bring renewable energy resources to underserved regions in Asia and Africa. A case in point is Husk Power Systems, a rural distributed utility company that installs and operates hybrid solar photovoltaic and biomass mini-grids in Tanzania and India.

"What we found quite difficult in the recruitment process was finding experienced female talent in the venture capital ecosystem"

Despite the broader investment mandate, Shell Ventures does not betray its core oil and gas realm. In March 2017, Shell spun out Salamander Solutions, a cable-based heater systems developer transmitting electric heat over distances above 10km. For oil and gas operations, it provides functions such as enhanced oil recovery at heavy oil wells, or preventing the plugging of wells and flowlines that produce high amounts of wax, hydrates or other types of scaling. Van de Wouw described it as nothing less than "the largest intellectual property portfolio Shell has ever spun out".

The technology enhances viscosity in heavy oil wells. Tests have shown a five-times improvement in oil flow. The solution also has applications in deep-water developments. Van de Wouw described it as "reelable and very easy to install through conventional methods". He also commented on investments and initiatives in the oil and gas realm in general as mainly geared to drive "cost reduction and the environmental impact of reducing CO2 and methane emissions".

When it comes to new energy sources, van de Wouw said Shell Ventures was looking to back technologies and businesses models that would "give Shell competitive edge on solar and offshore wind, whether in terms of technologies or business models. This includes propositions on the customer side that can help Shell's power traders to reach more customers."

There has been no shortage of investments. Earlier this year, Shell Solar acquired a stake in US-based Silicon Ranch – a developer, owner and operator of solar energy plants. Germany-based solar energy storage system developer Sonnen raised a €60m round led by Shell Ventures in May. Another portfolio company, Innowatts, has built a software platform that uses data generated from more than 12 million smart meters to measure and analyse energy consumption, helping users optimise costs, forecast energy use patterns and create specialised energy products or services across the value chain.

Van de Wouw stressed that, despite being a strategic investor in small and medium-sized enterprises, Shell Ventures runs very much like a financially-oriented investment house and seeks to help startups – and their VC backers – generate a financial return. "We need to be very conscious that a profitable exit is the only way in which a financial VC makes money. This is an area where corporate VCs can struggle, as their investments tend to be more strategically motivated, where the value comes from deployment economics or an acquisition.

"With the ever-changing strategies at corporates, the relevance of a portfolio company may lessen and follow-on funding may stop, even when it should be warranted based on the startup's financial performance. The best way we corporate VCs can secure quality dealflow from our VC partners is by being 100% aligned with them on maximising exit proceeds and proving to be a predictable and consistent co-investor."

In addition to supplying startups with funding, van de Wouw explained how such startups were connected with corporate parents. "We have implementation managers in our team who help those new companies to connect with various divisions, projects and business units of Shell, which eventually helps them become our partners or suppliers."

This integration into the corporate parent's ecosystem also attracted other investors and enhanced revenue prospects for the company. "The new energy domain depends heavily on new technologies and business models for its growth. As this domain is growing, so is Shell's interest in these ideas. So cooperating with those startups and making them part of our ecosystem is something quite natural."

Did this mean some of those promising emerging companies were potential M&A targets? While not ruling out that pos-

sibility, van de Wouw spoke mostly of striking strategic partnerships. "We usually aim to help them go past the valley of death and become one of our suppliers, or forge a relationship which can be a building block for growth in one of our businesses."

He also emphasised that in cases of potential acquisition by the corporate parent, Shell Ventures fulfils fiduciary duty, properly separating company interests from Shell's interests. "Having proper information barriers in place – Chinese walls – is paramount. Access to Shell Ventures' IT systems, for example, is restricted to Shell Ventures personnel and separated from the rest of Shell in order to prevent leakage of competitively sensitive information. Furthermore, we separate board director roles from board observer roles. We regularly take both types of roles in a startup's board. While director roles are typically taken by Shell Ventures' personnel, we sometimes pick a Shell retiree or an independent domain expert to serve as board director on our behalf."

With an expanded mandate, Shell Ventures has also taken limited partnership (LP) stakes in funds, currently holding eight – Autotech Ventures, specialising in early and growth-stage transport technology; Congruent Ventures, concentrating on early-stage investments across hardware, software, enterprise, consumer, deep technology, fintech and business model innovation; Energy Ventures, specialising in growth-stage oil and gas companies; G2VP, focused on transport, manufacturing, energy, agriculture and logistics; GRC SinoGreen Fund III, a China-based fund focused on renewables and green technologies; Set Ventures, a Netherlands-based fund focused on renewables; ProVentures, a US and Norway-based fund; and Chrysalix, focused on high-growth energy companies.

In addition, it supports incubator program Greentown Labs in the US and Shell's own incubation program E4 in India. E4 was launched in October last year at Shell's research centre in Bangalore to attract the best Indian entrepreneurs from the energy domain.

Much like in other corporate VCs, Shell Ventures' investments in new funds give it an overview of various innovation scenes. "We are constantly looking to invest in new and interesting funds that would give us an extended view in a certain geography or industry, or lead us to new co-investment opportunities."

It is hardly surprising that Shell Ventures has, in some cases, co-invested with the venture funds in which it holds an LP stake. For example, it committed capital to Kespry, a data analysis tool for industrial drones, which was also backed by G2VP, and it co-invested in Bluware with Energy Ventures. Shell Ventures will undoubtedly continue to make direct and indirect venture investments in the multifaceted future of energy. ◆

Spotlight: The challenge of battery tech investment

A range of new materials and technologies could yield vastly improved batteries for purposes including electric vehicles and grid storage. Callum Cyrus reports

Improved battery technology has the potential to improve a range of applications, from the flexibility of our power grids, to the durability of consumer electronic devices and functionality of next-generation electric vehicles.

To understand the appeal, it is best to understand how today's batteries work. Most are constructed with an alkaline metal called lithium, favoured for its ability to store large quantities of electricity. Power is produced when a device is connected to the battery terminals – the cathode and the anode – allowing lithium ions to flow through a liquid electrolyte inside the battery. But electrolytes can also be a potential safety hazard – if too much heat is generated in the solution, the battery can ignite.

This has already caused problems for consumer electronics producer Samsung, which was forced to recall its Note7 smartphone after handsets began bursting into flames.

Safety, then, is a major driver for corporate venturing investment in new battery technologies, but there are others. Capacity is a concern as applications become more demanding. Consumers yearn for smartphones that last for weeks rather than hours, while electric vehicles must operate over distances similar to those of conventional vehicles if they are to secure widespread adoption.

The changing nature of the energy mix itself is also a factor, in addition to the need for better performance from grid storage units. Growing roles for intermittent renewable inputs such as wind and solar as well as electricity produced by households are big CVC drivers, in addition to the growing number of electricity customers globally.

The challenge

Depending on the application, a host of materials and innovations could fundamentally change how batteries are manufactured. These range from simple supercapacitors intended to sustain minute power requirements over longer periods, to paper-based designs offering a biodegradable option in challenging operational environments.

But some are sceptical such innovations can be translated into commercial success, and there is a sense that it has been a struggle to monetise new battery technologies.

According to GCV Analytics, the value of corporate-backed deals for battery-related technologies has varied year to year, slumping to $93m in 2016 from $415m in 2015 before recovering to $625m in 2017 and $288m so far in 2018.

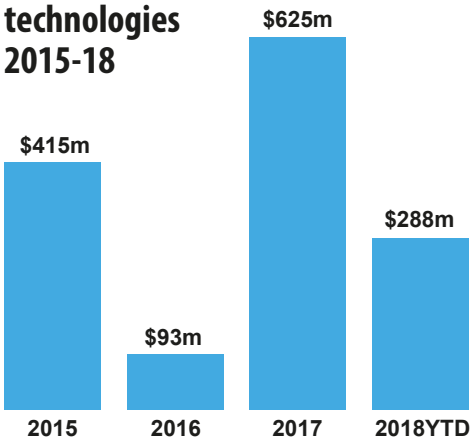
Keith Gillard, general partner at advanced materials-focused and corporate-backed VC fund Pangea Ventures, said the battery segment remained a "challenging space" associated with incremental gains and "less venture dollars".

He added: "Batteries are always a high percentage of our new dealflow every month but it would take a truly exceptional opportunity for us to invest in another battery company."

Pangea Ventures is backed by an array of corporate investors, including oil company BP, chemicals conglomerate BASF and Samsung Venture Investment, a corporate venturing arm of the consumer electronics producer.

The fund, whose investment purview takes in advanced materials and chemicals, has now sold its position in three battery developers – electric car battery manufacturer Envia Systems, carbon nanotube producer Cnano Technology and performance additive developer Boulder Ionics.

Total value of corporate-backed deals in battery technologies 2015-18



"It would take a truly exceptional opportunity for us to invest in another battery company"

Keith Gillard, Pangea Ventures

Pangea had tried to compartmentalise its investments around different elements of battery design, according to Gillard. Envia and Boulder Ionics, for instance, offered insights into improving cathode or anode materials and electrolytes respectively.

Consumer electronics and electric vehicles

Consumer devices, such as smartphones and tablets, have proliferated, each new release arriving with more advanced processing specs that often drain the battery faster. Replacing or augmenting conventional battery technology is therefore a valuable proposition in the consumer space, and there is also clear CVC incentive for improvements which support the transition to electric vehicles.

While electric cars have increased in popularity in recent years for their ability to reduce greenhouse gas emissions, the limitations of current lithium-ion batteries frustrate their ability to supplant conventional automotive technology on a grander scale.

Electric vehicle batteries still do not offer enough mileage to satisfy the most demanding of motorists, and many are unlikely to accept recharging times causing disruption to a journey. Safety, again, is an absolute must, as is pricing, which must be affordable enough to lure users from petrol.

Gillard said the ideal battery for electric vehicle applications should possess strong energy-to-weight ratio and be capable of delivering multiple currents and voltages without using a transformer, which steps voltages up and down between circuits.

One of the sector's most promising technologies involves replacing flammable liquid electrolytes with a solid material such as polymer or ceramic, in what is known as a solid-state battery (SSB).

The size of the prize means automotive firms are willing to plough resources into pursuing a solid-state breakthrough, either through venturing or through in-house R&D programs and industry partnerships.

Frank Blome, head of carmaker Volkswagen's centre for excellence for battery cells, said: "The solid-state-battery can be a real game-changer in the future of electric vehicles. The technology can provide higher performance with even more safety at lower cost."

In June, Volkswagen invested $100m in solid-state battery developer QuantumScape, which it first partnered in 2012, taking a board seat in an agreement aimed at deploying an SSB production line by 2025.

The QuantumScape agreement came after Ionic Materials drew $65m in series C capital in February this year from investors including Alliance Ventures, the collaborative VC fund of carmakers Renault, Nissan and Mitsubishi.

Another solid-state battery developer, Sakti3, was acquired by cleaning and climate management equipment maker Dyson for $90m in 2015. It had raised approximately $50m in venture and grant funding, with backers including Dyson, automotive manufacturing group General Motors and trading conglomerate Itochu.

In spite of these investments, a marketable solid-state battery remains elusive. There remain questions over how soon

a viable solid electrolyte might be produced at commercial scale. Shinzuo Abe, head of carmaker Toyota's powertrain division, has reportedly conceded an SSB may not be ready for mass-production until at least 2030, rather than early in the coming decade as previously thought.

Toyota, which is exploring a battery tech tie-up with electronics producer Panasonic, now expects only to begin internal testing of its SSB technology by the early 2020s.

Sluggish progress on SSBs is reflected by modest corporate venturing inflows for the technology compared with developers working with conventional lithium-ion parameters – solid-state developers have raised $239m since 2015, against $572m for lithium-ion, according to GCV Analytics.

The same data indicates there have been 11 deals with corporate involvement since 2015 for SSB businesses, compared with a total of 24 for batteries based on lithium-ion, grid storage and other materials.

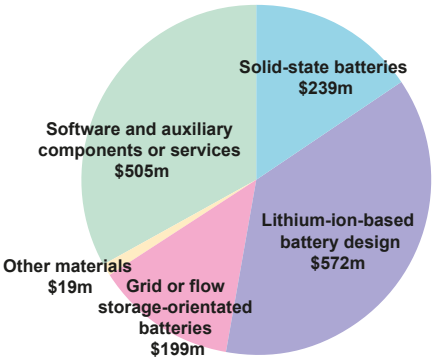
Blome said an improved battery solution for electric vehicles was likely to be found with time. Asked whether he was concerned about obstacles in delivering new battery technologies, he said: "I have no big concerns, but there is still a lot of hard work to do in order to shape the future. This business is still quite young in the realm of the high-scale automotive world and we still learn a lot every day.

"The long-term task is to develop a battery technology platform that delivers e-mobility for vehicles in all segments. That is to say, batteries going up to super-sportscars and down to the mass volume segment, always combining good technical performance with best costs."

"There is still a lot of hard work to do in order to shape the future"

Frank Blome, Volkswagen

Total value of corporate-backed deals in battery-related technologies since 2015



Companies targeting electric vehicle applications with more conventional lithium-ion approaches include Proterra, which develops buses powered by electricity. The company's latest vehicles come equipped with a lithium-ion battery said to have fuelled a record 1,100 miles on a single charge.

Automotive manufacturer Daimler co-led Proterra's $155m round earlier this month, joining fellow carmakers BMW and General Motors in backing the company and illustrating the scope for performance gains from lithium-ion electric vehicle batteries.

Grid storage

The need for improved grid batteries is becoming clearer as developing countries connect more of their citizens to electricity, necessitating the development of vast networks of power plants and transmission lines.

Last month, multilateral financial institution World Bank was reported by the Financial Times to be lining up a $5bn funding initiative, including $4bn from external investors, to drive a fourfold expansion in the battery storage capacities of developing countries. Huge batteries are used by electricity grids to manage peak demand, offset congestion and ensure a consistent output of power.

Gillard said energy storage operators most appreciate battery technologies that offer downward pressure on costs, an advantage that helps upgrade existing grids effectively. Another consideration is the growing prevalence of renewable power plants, which require a robust storage solution to compete with the fossil-fuel facilities traditionally relied on for constant provision of a minimum level of power.

One material finding favour for energy storage purposes is sodium. Batteries made with sodium could supplant more precious compounds that drive up overheads for grid stores. CVC-backed sodium-ion battery developers include UK-based Faradion, which received $4m in funding from investors including catalyst technology supplier Haldor Topsoe in January 2017. While exploiting sodium for its batteries, Faradion also claims to have packed in enough energy density to target low-speed electric vehicle applications.

Pangea Ventures' interest in this space is an investment in US-based developer Energy Storage Systems (ESS), whose batteries employ an all-iron flow battery it claims can sustain 20,000 cycles of power.

ESS received $13m in series B capital in a December 2017 round led by chemicals producer BASF's Venture Capital division and backed by Pangea Ventures among others.

Software

CVCs are also taking an interest in software-led designs that enhance the performance of existing and future battery technologies. The data shows software developers, together with companies focused on auxiliary battery-related products, have taken a 32.9% share of corporate-backed funding in the battery sector since 2015.

Software-led designs benefit from faster applicability than models that alter the manufacture of batteries, something of a tonic for investors weary of slower progress in the hardware segment. One such emerging company is energy storage software developer Greensmith Energy, which was picked up by energy integration services provider Wärtsilä in July last year.

Greensmith had secured $18.3m in a two-tranche 2015 round featuring energy utilities Eon and American Electric Power, adding to $8.9m in equity previously disclosed in regulatory filings. The company claims its software is already installed in more than a third of US energy storage capacity.

Operating in a similar space to Greensmith is GreenSync, which last raised $8.7m in January 2017 from companies including Southern Cross Renewable Energy Fund, backed by telecom and internet group SoftBank.

Software is also increasingly integral to battery performance in consumer electronics. Examples include diversified conglomerate Alphabet's latest Android operating system, which uses artificial intelligence to predict when and how smartphones are being used so that energy demands can be adjusted accordingly.

Android's market penetration means Alphabet's solution is likely to secure widespread adoption, and such is the scale of the opportunity for emerging software battery products in the consumer space.

Given Samsung's experience with faulty batteries, software intended to prevent battery overload and degradation is also likely to draw corporate venturing interest.

Power-charging software developer Qnovo is one CVC-backed developer in this field, having secured $8.6m of series B funding in 2015 from investors including Intel Capital, a corporate venturing arm of chipset maker Intel. Intel's involvement gave Qnovo the opportunity to install its software on mobile devices powered by the corporate's processing chips, a route to market share.

Energy CVCs are also ploughing cash into auxiliary products and services that augment batteries, such as upgraded power chargers that could help reduce downtime for consumers and motorists.

Oil producer BP, for instance, committed $20m to battery charging technology creator StoreDot in May 2018 through its strategic investment subsidiary, BP Ventures. StoreDot, which also counts Daimler, Samsung and cybersecurity technology provider Nation-E among its backers, has devised an "ultra-fast" charger and flash battery that offer vastly reduced charging times for both electric vehicles and consumer devices.

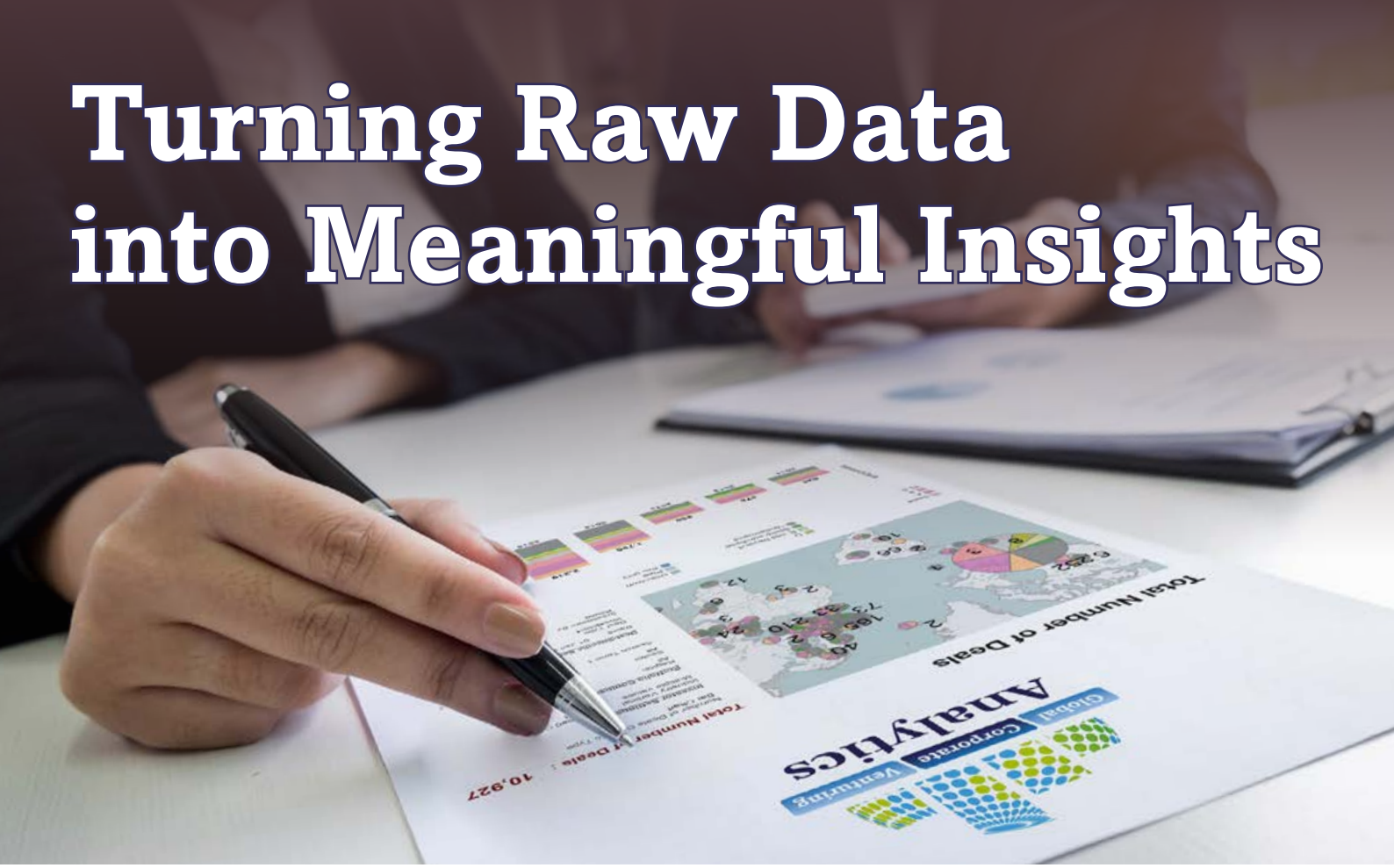
Conclusion

As Gillard noted, real barriers to investment exist for material-led battery technologies. Each of the array of materials vying for adoption brings its own unique challenges in development. But strategic capital is likely to continue following battery innovations – either tracking technologies with maximum potential over the longer term or those with advantages that can be implemented a faster.

The biggest question from an electric vehicle perspective remains how fast a solid-state solution can be commercialised. Manufacturers, which often buy electric vehicle batteries from China-based suppliers, will be anxious to avoid missing the opportunity to take the lead on manufacturing internally.

For this reason, solid-state manufacturers are likely to continue drawing high-value investments, though the number of deals may be smaller, perhaps due to a modest pool of strategic interest compared with other battery technologies. ◆

Turning Raw Data into Meaningful Insights



Global Corporate Venturing Analytics

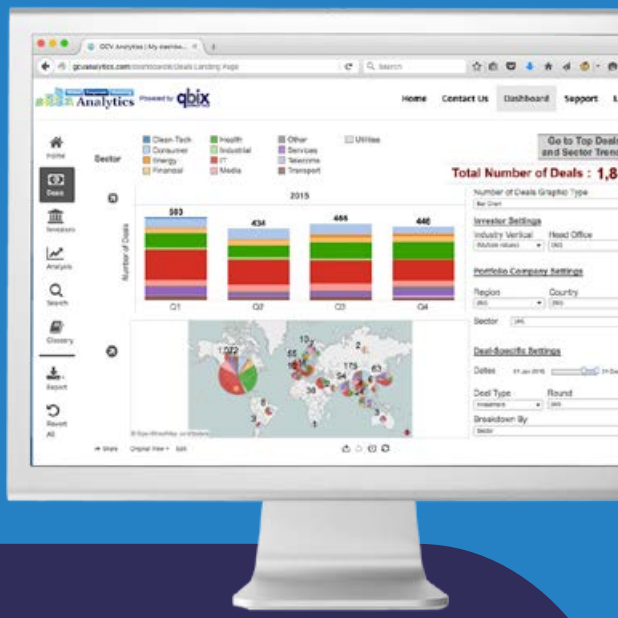
Global Corporate Venturing Analytics delivers corporate venture teams the data and tools they need to develop their insights and data-driven decisions.

GCV Analytics Unique Features

- 10,000+ global CVC deals since January 2011 for you to analyse. It's the best global CVC data available.
- Quickly and easily create charts, maps and graphs to download to Excel or as a PDF - ideal for presentations and reports.

With powerful search and data analytics capabilities, our platform enables users to find emerging trends by sector, geography, year, and easily identify disruptive technologies and products. We also enable you to benchmark your investment results and track company goals against the entire industry.

Taking away the time-consuming manual processes in giving you the information you need



Arrange Your Free Demo Now

Contact Tim Lafferty for more information
tlafferty@globalcorporateventuring.com

www.gcvanalytics.com

SPECIAL REPORT

The second GCV Asia Congress: Rise of Dragon & Tiger Tech II

Liwen-Edison Fu, reporter

Despite poor weather leading up to the second GCV Asia Convention last month at the InterContinental Hong Kong, about 200 delegates attended the event, which was preceded by a two-day GCV Academy at KPMG's offices. Paul Morris, head of the academy, led an interactive workshop with guest speakers who included corporate venturers from Asia and other parts of the world.

During the congress, Morris introduced **Bernard Chan**, undersecretary for the Hong Kong government's Department of Commerce and Economic Development, and previously political assistant to the secretary for commerce and economic development.

Morris said: "Chan is no stranger to the technology sector. He has worked for 10 years in the sector with a particular focus on commercialisation of intellectual property, so he has a lot of experience in things that we are all interested in."

Returning to the Asia Congress for the second year, Chan spoke on innovation and technology in Hong Kong, saying: "Hong Kong is actively embracing technology and innovation as the new impetus of economic growth. We have allocated more than $10bn to upgrade our technological infrastructure due to a vibrant ecosystem for startups and nurturing talent in Hong Kong. We will be focusing on four areas – biotech, smart city, fintech and artificial intelligence (AI) and big data analytics."

Chan concluded his speech by remarking that Hong Kong was determined to become one of the world's most desirable destinations for innovation and technology companies as part of the Greater Bay Area, covering Hong Kong, Shenzhen and Macau *(see spotlight)*.

Jay Eum, co-founder and managing director at Translink Capital and co-chairman of this year's congress, initiated the first discussion in the morning, saying how impressed he was with Hong Kong's quick recovery from Typhoon Mangkhut, which hit Hong Kong a few days before the event.

Eum went on to talk about the recent trend in the industry. "One thing to note, compared with previous years, is the trend in corporate venture has clearly shifted not only from traditional technology companies being actively engaged in corporate ventures, but corporations from traditional industries that you would not necessarily think are on the leading edge of technology are now very much actively engaged in corporate venture activities and actively looking to partner innovative technologies."

To begin this section – Asia's corporate venturing insights – Eum affirmed: "You will see a mix of an automobile company,

an insurance company, a real estate company and a traditional company join us on stage today to share some of their diverse insights."

Eum then introduced panellists **Takeshi Kodama** of 31Ventures, **Lee Sessions** of Intel Capital, **Sung Woo Shin** of Hyundai Motor Company and **Donald Lacey** of the Ping An Voyager Fund.

Sessions said Intel Capital had invested in Asia over many years, investing $2bn in China alone, in more than 140 companies, 40 of them in China. He said: "We invest broadly in Intel Capital's strategic interest in terms of value future growth and economic disparity."

Sessions described how he come to his current post. "Wendell Brooks, president of Intel Capital, asked me to take on a new role last year where I am helping to enhance and deepen the network of corporate venture capital relationships. We realised that, just like it is the secret sauce for Intel Capital to add value post-investment, most of you have programs and processes in place to do the same thing.

"When we invest together, we do a better job for our portfolio companies – we look at what can do to help add value to those portfolio companies."

Eum commented that, over his 18 years of corporate investing, Intel Capital had been the most collaborative corporate venture arm he had seen.

Shin introduced himself as head of corporate venture capital of Hyundai and a managing director of China Mobility Fund. He said: "Until last year, Hyundai's CVC focus was on R&D, but starting this year, we have a more active role in digital transformation and leading new business models from different sectors." Hyundai had been investing more globally in recent years in companies from countries such as Singapore, India, Israel and Australia.

Lacey, chief operating officer and managing director at the Ping An Voyager Fund, which invests in fintech and healthtech opportunities, primarily outside China, said Ping An was the largest insurance company in the world. One in every 1,000 people in China was a direct or indirect agent, and one in 10 was insured by the company.

The Voyager Fund had a history of building fintech and healthtech businesses at scale, such as Ping An Good Doctor, a telemedicine platform listed on Hong Kong Stock Exchange, on which some 200 million digital users could consult doctors. "That gives us an interesting scale and access to introduce new technologies, new capabilities that we find in different parts of the world," Lacey said.

Takeshi Kodama, project manager at Japan-based real estate developer Mitsui Fudosan's corporate venture capital arm 31Ventures, said his unit was founded in 2015 and made investments through its 31Ventures Global Innovation Fund in areas such as energy saving, power sensors, artificial intelligence and other background technologies.

He said that since 31Ventures' inception "it has made 22 investments so far – half are located in Japan, four in the US, four in Israel, two in the UK and one in Singapore".

Eum asked panellists: "Choose a portfolio company and explain why you thought it was an interesting opportunity, what exactly was the process and the result."

Sessions said: "At Intel Capital, we developed several investment theses, and we look at that primarily through the lens of core technologies concerning the way data are collected, stored, secured and analysed.

"In one area, we recognise that China plays a critical role in cloud computing and we wanted to pursue potentially relevant opportunities that were unique to China and that could also have worldwide implications. This was particularly important to two of our Intel business units and this was based on our history of OpenStack implementation [an open-source software platform for cloud computing] over the past few years in China. We wanted to do the same thing with some of the emerging cloud technologies like containers. These are areas where there are great opportunities and we need to get into those markets.

"In this case we found Alauda, which optimised its container-based platform as a service solution on Intel's architecture and for Intel's products. By investing in Alauda we aim to optimise their container-based platform-as-a-service solution.

We also make targeted customer market opportunity referrals. Alauda's hybrid cloud management platform could be included as an "Intel selected solution" by a key business unit.

"The deal was referred to Intel Capital by AWCloud, an existing portfolio company that is focusing on OpenStack solutions. Tencent also invested in Alauda and obviously we can jointly do many things together to influence Chinese customers.

"Gerald Chen is the investment manager who did the deal in conjunction with some of our investment managers in the US that helped rope in some of our core technologies, help us evaluate the distinctiveness of the technology, but we actually did this as an eyes-and-ears deal because we thought it would be aligned as a strategic deal, but it was really something that we saw at the time as an emerging differentiator that we wanted to get to know and, much to our surprise, it turned into something that was really closely aligned to the business unit.

"So we often see things going in directions different from what you might have expected, good and bad, and sometimes ugly, but in this case, that was a very positive solution and we were able to help align them as we do with many of our companies.

He added: "We are attempting to invest in fewer deals and deploy more dollars per deal and to provide more targeted help to the companies that we invest in. In 2017 we invested $690m in 45 new and 43 follow-on companies. Wendell Brooks has been trying to get us to do 30 deals a year."

Sessions said to add real value in a focused way meant doing fewer deals so more time and energy could be put into the growth prospects of the best companies.

Shin said: "Our corporate venturing philosophy at Hyundai is that we are purely strategic, and we need to align the corporates and the ecosystem. We need a stable triangle relationship – the business unit, corporate venturing and the ecosystem. Because we have our roots in Korea, it was challenging from the beginning to go global when we started corporate venturing. We asked for a lot of help from our venture capital partners to give us specific examples of how we tackle the US market together.

"When we first went to Silicon Valley, we did not have any network in the ecosystem. The relationship between the business unit and corporate venturing was very loose, so we asked someone from Samsung Venture to help us out. He knew about our situation and challenges, so he helped us navigate into the ecosystem of Silicon Valley."

"We often see things going in directions different from what you might have expected"

Shin said he believed artificial intelligence was becoming more significant. "If the computer processor is from Intel and memory from Samsung, who inputs the data? It is a human. Who interprets the input and output from computing? Also a human. However, we see a radical change happening in Silicon Valley. A lot of companies emerging from Silicon Valley focus on the use of semiconductors that collect information. And who is doing the interpretation now? Artificial intelligence is doing it.

"We are actively scouting those technologies. An example is SoundHound in the US. Cars can be radically changed with voice recognition innovation. We also invested in a chip company in Israel called Autotalks. Those are how we define the coherent goals that go with the business unit and then we execute globally to serve not only corporate venture capital needs but also business needs."

Lacey added: "We benefited at Ping An from a real focus on innovation at the very top of the leadership, so we are very focused on finding interesting ideas that are likely to have scale-up capabilities and pursuing those even if there is not tremendous amount of alignment at the business unit level.

"We invested a while ago in Title Care, an Israel-based company building a little device we can buy for $100 that enables you at home to give your spouse, yourself, your child, your loved ones about 75% of what a doctor would do in a check-up. It is a device that will take your blood pressure, check your heart rate, and a camera with a light that will shine on your ear, shine on your nose, a statoscope and all of that information is streamed on to the cloud, digitised.

"If you happen to operate a very large telemedicine platform, you can take all that data and use it as a basis for a much more automated, effective and accurate triaging and diagnosis framework. That data also aggregates over time, so that sort of cloud-based framework that we can deploy at scale across Ping An Good Doctor, for instance, is a powerful combination."

Lacey said he had chosen this example because it distilled the debates around alignment and whether it was done for strategic or financial reasons into one simple question: "Are we at Ping An going to be creating value at an investment beyond just a dollar value on the cheque that people are writing? If the answer to that question is yes, then we are enthusiastic about the investment, but if the answer is no, then we struggle to explain to ourselves why we ought to be good in it."

Kodama expanded the topic by mentioning how 31Ventures invested in real estate: "In 2020, Tokyo will host the Olympic Games and there might be many cyberattacks in properties – office buildings, shopping malls, hotels and so on. These facilities and buildings are operated by non-standardised protocols like heating, ventilation, air conditioning, escalators, elevators, fire alarm systems – operated by different machine languages.

"We have 300 hospitals, around 20 shopping malls in Tokyo. In properties at Mitsui Fudosan, we partner a protocol com-

pany called Scadafence, an early startup with a modern system, Scada. We provide a safe, secure and stable systems to our customers, clients and residents."

The overall theme of the congress was summed up by another session – Will Asia outsmart the rest of the world? – based on considering the so-called dragon and tiger economies use of corporate venturing to invest in technologies of the future.

Moderated by **Gloria Liu**, corporate partner at DLA Pier, the panellists were **Gen Tsuchikawa**, chief investment manager at Sony Innovation Fund, **Srinivas Gattamneni**, chief portfolio officer at Axiata Digital and CEO at Ada, and **Jeffrey Li**, managing partner at Tencent and the other congress co-chairman.

Liu started the discussion by asking how corporate venture was being used as a tool across different markets.

Gattamneni said: "Our focus is on Southeast Asia. They are segregated markets – you cannot aggregate them. Each country has its own regulations, and each one has different investment risks. And there are also very different digital innovation options. For instance, Bangladesh is different from Singapore and Indonesia.

"One of the things we considered was: how do we get into adjacencies using corporate venturing? One of the things we did five years ago was look at the different sectors we needed to be in as a corporate by 2020. We focused our investment very much on filling those key gaps in the value chain that we felt we had in our capability. The second thing that we did in markets like Cambodia, Sri Lanka and, more recently, Bangladesh, was use corporate venturing to kick off the startup ecosystem. In many cases, we even had to create fund management teams."

Li then cited Tencent-backed group-buying platform Meituan-Dianping's recent $4.2bn flotation in Hong Kong as evidence that corporate venture was being used as a coalition-building tool in China. "Our belief in the entrepreneurs actually leads to our supporting position when we make investments," he said. "Tencent is keen on making investments in digital content, especially in the gaming sectors. China, with its population of 1.3 billion people, and being a single-currency single-language country, definitely helps startups to thrive in this market."

Tsuchikawa added: "Japan's venture market is around $4bn. Historically, it has been a bio-focused market, but with all the corporates coming in over the past two to three years, it has become a larger market."

He said many of the major Japanese companies were embracing opportunities to build relationships and foster talent. When Sony Innovation Fund had returned to investing three years ago, initially it was thought the Japanese portion of

the portfolio would be 5% to 10%, "but at the end of the day, we are finding many good opportunities and the Japanese portion has ended up being somewhere around 35%".

He added: "Technology companies in Japan especially want to go global quickly, so we can help them extensively."

Anson Bailey, KPMG's head of technology in Hong Kong and head of consumer and retail in Asia-Pacific at KPMG China, who moderated the keynote discussion – Case study on HarbourVest's partnership with Telstra Ventures – raised the issue of whether the globalisation that underpins much of the corporate venture capital flows and entrepreneurs expansion plans could be affected by talks of a trade war.

The day before the congress, US president Donald Trump had announced $300bn of new tariffs on China, and Alibaba's co-founder and executive chairman, Jack Ma, had remarked this trade war could last for 20 years.

Bailey's panel of **Tim Flower**, managing director at Harbour Vest, and **Chris Pu**, partner and head of greater China at Telstra Ventures said as the focus would remain on mainland China a trade war was not enough to stop it.

The global innovation corridor challenge was a discussion moderated by Ramy Farid, co-founder at Proseeder Technologies, between Martin Haemmig, adjunct professor at Cetim and Glorad, and Xiaoyang Li, managing director and head of M&A and strategic investment at 58.com.

Haemmig said he had, for the past 15 years, been researching innovation in Asia. The four innovations that he looked at were technology, product, process and business model. He also showed the audience data on the internationalisation of startups and internationalisation of corporates.

He said: "Fewer and fewer corporates were acquiring their own portfolio companies, and it was only in the first half of this year that there was a massive swing back for the very first time in years. Why is that? It was because of artificial intelligence, machine learning, robotics and automation. That is a very clear domain in China and in Silicon Valley. That means the corporates are investing to get very early access to emerging markets."

Xiaoyang Li, above, watches Martin Haemmig, left, address delegates

Li said: "The Chinese market is quite particular because of our culture. The business environment in China is quite different from western countries. So when companies want to go into the Chinese market, first they should respect the local management team and hire local people – try to build a solid local team who know the local business environment better."

Haemmig concurred and said many startups would send their best salespeople to that region but it could only lead to failure. His suggestion, like Li's, was to build a local team which could navigate freely in the ecosystem.

Tim Lafferty, chief operating officer of Global Corporate Venturing, interviewed Nicolas du Cray, China partner at Cathay Innovation on International investing: Asia to Europe and Europe to the US.

Cathay Innovation is a VC unit of Cathay Capital, which was itself founded 12 years ago as a crossover fund linking France and China by Ming-Po Cai who had lived in France for 25 years and wanted to build bridges between the two countries.

Before joining Cathay Capital, du Cray was a venture partner at Orange and Publicis-backed Iris Capital until 2015, and he was responsible for its investments in China.

Du Cray said: "Cathay Innovation is a global venture capital fund that invests in three countries – the US, China and France. We have a team in each country and the three work closely together. We learn from each other and we compare the activities and technologies from each other's countries.

"Cathay Innovation has a multi-corporate model. Many corporates, such as Valeo, Michelin, Cardif, SEB Group and so on, invest in our fund to strengthen their own activities. Many of these corporates actually have their own corporate venturing arm but they invest in Cathay Innovation because that way they can scan technology coming from startups from all over the world, just by investing in our fund."

Du Cray shared a story about Pinduoduo, a China-based company in which Cathay Innovation invested two years ago. At the time it was a fruit seller, and its founder Colin Huang explained to Cathay Innovation the way he sold fruit through messaging platform WeChat in a gamified fashion. "The company grew really quickly and, this year, it is valued at approximately $40bn."

Lafferty added that Tencent, WeChat's parent company, was one of the corporates that invested in Pinduoduo.

Du Cray said: "China is an interesting market. However, it is also challenging because it is very competitive, and we need to be able to make quick decisions. Therefore, it can be challenging for corporate investors. The speed at which investments are made can be overwhelming."

Du Cray added that Cathay Innovation always sought to be local at every office. For instance, in China, the team should be more Chinese to adapt to the Chinese market.

Answering Lafferty's question on how Cathay Innovation shared information with the corporate partners, du Cray said they, along with many portfolio companies, would meet regularly to share insights and new opportunities.

The view of CVCs held by portfolio companies came out in a panel – Unicorn insights on corporate venturers and how they can help – moderated by Yinglan Tan, founding managing partner at Insignia Venture Partners, and including Danny Yeung, CEO of Prenetics, a Hong Kong-based pharmacogenomics platform, and Bruno Maisonnier, CEO of Another Brain.

Yeung said it was a "love-and-hate relationship" because "you definitely want the corporates involved, but at the same time you do not want all the internal politics that goes on there". With corporate funding from the likes of Ping An and Alibaba in its $50m fundraising, Yeung said "it would definitely help if someone at the top of the organisation, preferably a C-level executive, is driving their stakeholders".

Bruno Massonnier

Maisonnier, a former chief executive at Aldebaran Robotics, where he led the creation of robots such as Nao and Pepper, and who worked with Intel Capital and SoftBank, a year and a half ago created artificial intelligence, deep learning and big data company Another Brain to improve the limited communication capabilities of Nao and Pepper. He said: "I have invested in 10 different companies with my own cash, so I have some personal experiences as an investor."

He said many investors would spread their investments over many companies to be on the safe side, but, although difficult, he considered it better to choose fewer companies. "The disruptive innovation needs more cash and support from the beginning," he added.

"Working with corporate partners can indeed be helpful, but often they see a product they like, and they want all of their team to get involved and it could actually do more harm than good to the product's development."

Tan raised another question: "What are some lessons you have learnt when dealing with corporates?"

Yeung said: "When you are dealing with so many different stakeholders from a corporate perspective, you really have to know what their key performance indicators (KPIs) are. Many times, things are looked at only from the entrepreneur's perspective and there can be misunderstandings. Sometimes there are 15 to 20 stakeholders and each of these indi-

viduals has a different KPI which may not be tied into the C-level executives' vision. You should tailor your presentation, navigating toward that specific individual's KPI."

Yeung added: "Corporate VCs have to understand startups are a different animal. Often, corporate VCs treat us like corporate companies. You must look at us as a startup growth company, look at our potential in the future. If you are a corporate VC, make sure you have a separate team or individuals that can manage us like a startup should be managed."

Maisonnier agreed and added: "Some corporate venturers actually behave like financial venturers. If they hired the team from financial ventures to take care of the investments, and there are no more corporate ventures, they become merely financial investments. Corporate venturers need to understand that the world of startups, milestones and KPIs are not the same. You should have someone from the corporate who knows his or her own market and who is ready to trust with you what is important in this market, not try to manage you."

In the following segment – Who controls the world: the future of technology, media and telecoms (TMT) – Pramila Mullan, senior principal at Accenture Ventures, interviewed Alvin Wang Graylin, China regional president at HTC, vice-chairman of the Industry of Virtual Reality Alliance and president of $18bn Virtual Reality Venture Capital Alliance.

Alvin Wang Graylin and Pramila Mullan

The discussion centred on augmented reality and virtual reality (AR/VR). Graylin said: "HTC is right now the global leader based on investments. We are the most active AR/VR investor in the world, with over 90 deals in the past two years."

Mullan first talked about the TMT transition in the US: She said: "In the US, we see companies like Amazon that enter through technology investment in IT, but then quickly migrated over to content. If you look at Apple, for example, it started with the Macintosh, then iTunes, iPod and iPhone.

"Telecoms companies climbed the value chain, so you have AT&T Horizon climbing the value chain into content and media. And then you have Disney and Netflix that have stayed in the media properties. It seems that the battleground is media. Are you seeing a similar pattern in Asia-Pacific?"

Graylin replied: "If you look at the global PC industry, that is definitely happening as the technology, the hardware and the platform mature. It is all going to be about content. What we are seeing in the emerging markets, emerging technology like AR/VR, is still more about the platform. That is where the money goes.

"Content is still a smaller part of the investments, but if you look at the hardware devices, the technologies and the platform, that is where the dollars are being put in." However, like the other TMT realms' transition, Graylin said in a few years this would change – as the hardware and platform matured, the applications and content would naturally emerge. In short, content was a key to sustain new technology.

Paul Morris ran the afternoon's roundtable discussion session, which included various topics including setting up a CVC, developing an ecosystem in Asia, sovereign funds and corporations' collaboration with VC.

Tom Whitehouse, chairman of Leif Capital and contributing editor at GCV, took up the sector challenges with a look at mobility and energy. His panellists were Jin Hu, China lead at BP Ventures, Simin Zhou, vice-president and managing director at UL Corporate Ventures, and Abhay Jain, chief executive at ActiveScaler. They took an in-depth look at mobility's evolution over the years.

Jain said: "Asia is the key when it comes to transport and mobility. Too many people have the need to travel. The real

issue is the sustainability of smart machines' future, as well as the culture and politics of Asia, which is still a challenge to move forward."

Zhou said: "At UL Corporate Ventures, we have done a few investments in mobility, one of them is Voltaiq, a startup with battery experts developing a platform for battery, data and analytics. A primary source of energy storage in the future will be batteries."

Hu said: "Technology will advance, and we will have better technology when it comes to mobility, not limited to electric cars and low carbon." She cited a Chinese saying – "right time, right place, right people" – to illustrate the different dimensions of the mobility sector. If travel was right, people met each other in the right time and place, then it was an appropriate description of the power of networks and meetings within the innovation capital ecosystem.

Paul Denning, CEO at Denning & Co, moderated the Driving next-generation corporate LP and GP relationships panel featuring Tyson Li, managing director of greater China region's corporate development at Cisco Investments, Eric Benhamou, founder and CEO at Benhamou Global Ventures, and Chibo Tang, managing director at Gobi VC and manager of the Alibaba Hong Kong Entrepreneur Fund.

Preparing for this panel, Denning said he had read a dossier from 1997 on a three-day Harvard conference, Corporate venture capital learnings. "It is very interesting how little has changed," he said. He also noted, however, that "the industry is much more efficient – there is a lot more dry powder, there is not a lot of liquidity".

He added: "Now, the corporate players are much more sophisticated, so there has been this symbiotic relationship once again between the corporate GP, venture capitalists and other folks." He invited panellists to elaborate on the differences they had noted in recent years.

Li said: "Ten to 15 years ago, we were focused very much on the core business of Cisco, but we now emphasise better insights for the market or technology disruptions coming down the pipeline."

Benhamou said: "For me, the biggest change in the corporate venture landscape in the past few years is that it was expected that technology companies would give up their corporate venture arms as separate units. But it was unexpected that non-technology companies would develop corporate venture arms and today Silicon Valley's finest companies come from completely different walks of life, the food and beverage industry for example."

Tang said: "There are two observations I would like to make. The first would be from the perspective of a financial GP like ourselves. We have made a market effort to build relationships with more corporates as we evolve because being an investor in China for so many years, you quickly realise that there is so much money out there. As you are looking to invest in some of these deals, you think about what kind of strategic values that you bring to the table rather than just the money.

"The second thing would be from an entrepreneur's perspective or from a venture portfolio company's perspective. Corporates and corporate investors become more active through strategic funds. In China you see the big corporate gods like Baidu, Alibaba and Tencent. They have so much capital to deploy, so now it has become a question of not what or why, but when." ◆

Spotlight: Hong Kong and Macau

Edison Fu and Alice Tchernookova

The second annual GCV Asia Congress took its international delegation on an innovation tour of Macau – known for its casinos but increasingly as a smart city test site backed by Alibaba – while the GCV Academy was being held for corporate venturing leaders at KPMG's Hong Kong office, including education sessions by Jeffrey Li, managing partner at Tencent Investment, before both parties met for a gala dinner and conference at the InterContinental Hong Kong.

Gordon Lam, Blair Zhang and Cindy Zu

After highlights from Bernard Chan's keynote speech at the Asia Congress, two local industry experts gave a snapshot of venture activity in China's special administrative regions of Macau and Hong Kong. Next month, GCV will look at mainland China as its innovative region.

The Greater Bay Area links Hong Kong, Macau – both special administrative regions of China – and nine cities in the Guangdong province.

Blair Zhang, executive chairman at Compass Innovation Alliance, organised the Macau delegation and in her panel at the GCV Asia Congress discussed the region's prospects with Gordon Lam, managing director at Sinofuture Group, and Cindy Zu, senior business development executive at PitchBook Data.

Zhang asked Lam to describe the Greater Bay Area briefly as Compass Innovation Alliance helps VCs to enter China via this gateway. Each one of the 11 cities forming part of the area "has different characteristics in terms of the industry developments and, therefore, has a different focus when it comes to the industry it wants to place emphasis on", Lam said.

He added: "Last year, the central government signed cooperation agreements with Hong Kong and Macau individually to push forward the Greater Bay Area plan. The plan itself has already been executed. The Greater Bay Area is trying to become one of the major bay areas of the world, comparable to Silicon Valley, New York and Tokyo.

"With a population of 66 million people, the Greater Bay Area boasts gross domestic product]per capita of $30,000, so it is a big market by itself. The area is still being developed under the slogan 'one-two-three-four' – one country, two special administrative regions, three currencies and legal jurisdictions, and four leading cities, Hong Kong, Macau, Shenzhen and Guangzhou. We hope that by 2020, the Greater Bay Area will at least be a match to the Tokyo Bay Area."

He described the different strengths that formed a complete value chain. "Hong Kong and Macau have a service-oriented economy which would help foster more R&D and commercialise many of the innovations. Meanwhile, Guangzhou, Shenzhen and other cities in the Guangdong province focus more on manufacturing and logistics."

Hong Kong: China's gateway to the world

Bernard Chan, undersecretary for the Hong Kong government's Department of Commerce and Economic Development, said: "Hong Kong boasts a number of top-notch universities with strong research capabilities, as well as world-class information and communication technology infrastructure and the largest data centre cluster in the Asia-Pacific region. Our internet connection speed is among the world's fastest, and our global penetration rate is the highest anywhere."

Chan said among continuing initiatives, Hong Kong would be establishing two research clusters. "One is focusing on healthcare technologies and the other on artificial intelligence and robotics. By developing these clusters, we aim to attract world-class scientific research institutions and technology enterprises to join forces with the local to develop more downstream and midstream R&D projects."

Chan judged Hong Kong's track record with its research clusters to be "pretty good" and gave an example from late 2016, when Sweden's Karolinska Institute opened its first overseas research facility for reparative medicine and a science park. In September 2017, Massachusetts Institute of Technology (MIT) opened its first overseas "innovation node" providing entrepreneurial education and training for students and researchers from MIT and Hong Kong.

Chan said the Chinese government had been supportive of Hong Kong. "Researchers in Hong Kong can have access

to research funding available on the mainland, and we can now have what mainland universities and research institutes have, and they will continue to set up laboratories in Hong Kong.

"Our strong financial market will certainly play a part in promoting innovation and technology. For example, we understand that biotech companies face financial challenges, and there is a long and costly journey in turning biotech research into effective products and applications.

"We are keenly aware that biotech companies with promising development require substantial cashflow to get through the arduous approval process demanded by relevant authorities."

Chan gave insights on what had been done by the Hong Kong Stock Exchange. "With biotech and other sectors of the new economy in mind, the Hong Kong Stock Exchange introduced in April this year a new listing regime which allows prerevenue biotech companies and companies with weighted voting right structures to list. The new regime also provides a route for issuers seeking a secondary listing in Hong Kong."

"Hong Kong has a diversified economy and is among the freest in the world"

Chan stressed: "We are developing Hong Kong into the preferred listing platform for emerging and innovating enterprises. We are also working relentlessly with industry stakeholders to enhance our ecosystem for startups. Today, a new generation of disruptors is taking advantage of Hong Kong's favourable economic and cultural development to create and innovate."

Chan said he believed that, in recent years, Hong Kong's startup scene had also taken off. He said: "With a growing number of private venture capital funds attracted by our startups, as well as incubators, accelerators and co-working spaces, we are confident that the startup scenes in Hong Kong will continue to flourish."

Chan reaffirmed that Hong Kong embraced technology and welcomed talent. "The Hong Kong government is targeting a range of measures to promote innovation and technology. These include tax incentives to encourage R&D with a 300% tax deduction for the first HK$2m ($255,000) eligible R&D expenditure by operations and a 200% deduction for the expense. There is no limit on the expenditure eligible for this tax deduction."

Making investments even more attractive, Chan announced: "We will make use of a HK$2bn scheme under the innovation and technology venture fund to invest together with the venture capital funds in Hong Kong technology startups.

"We have also introduced a HK$500m technology talent scheme to boost our technology talent. And we have recently announced a talent list which has been designed to attract quality professionals to Hong Kong to accelerate our development into a high value-added and diversified economy."

Chan then added another example of how supportive the mainland government had been. "We are developing with the Shenzhen government the Hong Kong-Shenzhen Innovation and Technology Park between the two cities.

"Shenzhen is a fast-rising innovation hub. The technology would play a critical role in the emergence of the Guangdong-Hong Kong-Macau Greater Bay Area which links Hong Kong, Macau and nine prosperous cities in the Guangdong province. Together, the Greater Bay Area has a population of close to 70 million and a GDP of some $1.5 trillion. Such economic and consumer concentration can only bring a bigger market potential for Hong Kong companies and the global companies that partner Hong Kong."

Charles Ng, associate director-general of investment promotion at Invest Hong Kong, who gave an update on Hong Kong's venture capital ecosystem, added: "Hong Kong has grown exponentially in terms of the startup scene.

"Hong Kong has a diversified economy and is among the freest in the world. It also offers a simple tax system. Hong Kong also has a growing startup community and diverse incubators and accelerators.

"In fintech, we are seeing a lot of folks looking at cybersecurity, insuretech, payment systems, digital banking, smart city, e-commerce, retail tech, healthtech and the internet of things." He said the Hong Kong government would act as a catalyst to complement, not to compete.

Jayne Chan, head of StartmeupHK at InvestHK, the Hong Kong government department responsible for attracting and retaining foreign investment, said StartmeupHK was InvestHK's initiative aiming to help founders of innovative and scaleable startups from overseas set up or expand in the region. She told the congress: "For decades, Hong Kong has had a functional role for


Jayne Chan

China, acting as a bridge linking it to the rest of the world. From a geographical point of view, it really is in the centre of Asia, attracting foreign and Chinese investors and entrepreneurs.

"The local government has always been proactive in promoting innovation as a strong pillar of the region's economic development. In recent times especially, a range of policies, budget allocations and initiatives have been launched. A significant amount of funding has also gone towards building the infrastructure and spaces necessary for innovation to happen.

"Hong Kong is also a great in-between place for international candidates willing to get into China. Accessing the Chinese market straight away can indeed cause a huge cultural shock – everything there is done very differently, with a different composition and a different way of doing business, and an extremely competitive environment. In Hong Kong, people have knowledge of both sides of the equation – that is why it makes for a good buffer zone.

"The region is also home to a very international community. A survey that we conduct every year regularly shows us that half of Hong Kong's startup founders are from overseas. This brings a lot of international expertise to the region and has given birth to a savvy local audience that is used to dealing with people from all around the world. The level of inward and outward foreign direct investment in Hong Kong is, incidentally, one of the highest worldwide [$104bn in 2017, according to the World Investment Report published by the United Nations Conference on Trade and Development].

"The bilateral exchanges with mainland China are still very much a cornerstone of the region's economic development. Because of the business-friendly environment that Hong Kong offers, it makes sense for Chinese businesses to set up their offices here. For instance, we offer intellectual property protection, or free access to media that may not be available in China. Our corporate tax is fixed at 16.5% – one of the lowest rates in the developed world – and has recently been further reduced to 8.25% for the first $2m of profit.

"For foreign investors, the privileged relationship that Hong Kong enjoys not just with China, but with the Asian continent at large, offers a number of advantages, including preferential tax treatment or free trade.

"In spite of all this, the Hong Kong ecosystem can still be considered pretty nascent. Realistically, growth in the venture sector started three or four years ago here, when different clusters started coming together, progressively giving birth to an actual ecosystem. Because it so young, it is still lacking some of the essential components that would make it fully-fledged. One of these components is actually the corporate venturing side.

"Quite a few corporates have set up their headquarters here, but it seems that the focus, especially for local companies, is still very much on property and finance. And even though traditional conglomerates and family offices may have the kind of funds necessary to invest in early-stage technology, they tend to place their capital across a range of different sectors, as opposed to following a defined strategy.

"To an extent, investments on behalf of corporates, family offices and conglomerates are already happening in Hong Kong, but getting them to engage with the ecosystem properly will be a hard-fought process."

Macau: En route to a venture gamble?

A recent report by Macau's Gaming Inspection and Coordination Bureau showed that the region's gross gambling revenue had climbed another 17% in August this year, hitting M$26.6bn ($3.3bn) after 25 consecutive months of growth.

Earlier this year, the International Monetary Fund ranked the region's GDP per capita second worldwide at $122,489, just behind Qatar's $128,702, adding that the city-state known as "the Las Vegas of the east" was likely to overtake Qatar by 2020.

In a place where, in the words of Blair Zhang, founder and executive chairwoman of the Hong Kong branch of the Compass Innovation Alliance entrepreneur platform, "nothing is related to innovation, because money comes too easy", what kind of future can be envisaged for venture?

Aidan Chuang, chief operating officer at Macau-based Marlin Investment, said: "There are two key features to remember when one considers Macau as a potential venture market. One is that as a side-effect of the gambling industry, its small population of 630,000 enjoys one of the highest GDP per capita in the world. This means that in theory, there is enough capital to support a venture ecosystem here.

"Second is the fact that, similarly to Hong Kong, Macau benefits from a special political status, which gives it a certain amount of freedom and independence from mainland China and makes it a relatively international and open place. From these perspectives, I would say Macau has great potential for becoming a venture hotspot.

"But of course, there are some challenges too. First and foremost, the overwhelming weight of the casino industry in the local economy [$28bn or 70% of Macau's GDP in 2017] leaves little space for other sectors to develop. There are, of course, other industries, such as tourism – which is often gambling-related anyway, but the rest of the activity remains derisory. This also means that a large part of the workforce [around a fifth, according to recent estimates] is involved in that industry. In addition, casino staff tend to enjoy higher pay and stronger job security than in other sectors, which gives youngsters little incentive to try to engage in other riskier types of activity.

"Finally, the small population size means human resources and access to talent are limited. This, coupled with a low level of knowledge-worker immigration, makes the creation of industry clusters very difficult. As a result, potential entrepreneurs are actually more likely to move to the nearby cities of Shenzhen or Hong Kong, where ecosystems already exist, than to stay here.

"The reality is that Macau is still in the very early stages of shaping a startup ecosystem. Especially when it comes to corporate venturing, I would say it is at toddler stage.

"However, things are slowly beginning to move. The government has started laying some foundations, having, for example, launched the local incubator Parafuturo de Macau Investment and Development, which recently received a M$12.6m investment from the state-owned Industrial Development and Marketing Fund. The local youth are starting to take an interest in entrepreneurship too, with initiatives such as the yearly Startup Weekend Macau [modelled on the Techstars startup weekends in the US] now shaping up.

"The key to Macau's success as a venture market will be to understand its strengths"

"I believe the key to Macau's success as a venture market will be to understand its strengths, and use them to its own advantage. For example, instead of the trending blockchain or artificial intelligence technologies, the focus should rather be on the strong sectors of tourism and gambling, trying for instance to introduce smart casino technology in the region. If Macau picks the right industries and the right direction for innovation, developing venture activity here could become worthwhile and profitable.

"Perhaps another thing that we are still missing here is the influence of some role models – some successful startup founders, or some Macau-born unicorns [companies worth at least $1bn] that could inspire young people and encourage them to go down the entrepreneurial path."

Last year, Alibaba announced it had entered into a four-year strategic partnership with Macau's government to support its transformation into a smart city, aiming to use cloud computing technologies to serve local residents and tourists. Six priority areas were fixed for the first phase of the partnership – cloud computing, smart transportation, smart tourism, smart healthcare, smart city governance, and talent development.

The agreement was Alibaba's first smart city foray into a market outside mainland China, and was set to build on the success of similar past ventures such as the City Brain Artificial Intelligence project in the Chinese city of Hangzhou. The internet group said it could consider a future collaboration with Hong Kong, where the government has already been experimenting with the smart city concept over the past two years. ◆

COMMENT

Next-gen CVC – our team crosses borders, breaks boundaries

Jonas Svedlund, general counsel and head of business development, GE Ventures

An oil platform in the North Sea may be an unlikely place to come across the tracks of a corporate executive, but it is just one of the many places where you will find evidence of the long reach of the GE Venture's legal and business development team.

As drones lift off from the platform to inspect nearby pipelines or flare stacks, more likely than not one of our lawyers will be enabling the activity – often remotely – as we work with entrepreneurs at portfolio companies like Avitas Systems to help them scale the autonomous drone company and navigate uncharted regulatory channels.

While my colleagues are obvious stewards of General Electric (GE) intellectual property that companies like Avitas use, they are also experienced business leaders who can help our portfolio companies grow and succeed. While some lawyers are conditioned to tell executives what not to do, our lawyers use their combination of business acumen and legal training to help entrepreneurs get to "yes" – and success – as often as they can.

The pace and scope of innovation in technology today means entrepreneurs need a seasoned team of experts who know how to launch and nurture startups. That is why on any given day, one of our lawyers may be advising on contracts for Vineti, a cell-therapy startup, or providing new business model training for Evidation Health, a digital health startup.

We not only invest in startups, but we also routinely create and launch new businesses

Meanwhile, in Boston, another member of our legal team may be talking to the Federal Aviation Administration regulators or GE's government affairs team in its work with Airxos – pronounced air-os, the x is silent – a recently launched company working on a next-generation air traffic management system to integrate air and ground space for autonomous and manned vehicles.

Unlike traditional venture capital groups, we not only invest in startups, but we also routinely create and launch new businesses, like Airxos, after incubating them in-house. This means embedding experts – including lawyers and business development professionals – who work alongside all GE's global resources, and accelerating the pathway from new business creation to production of innovative products.

In creating new businesses, it is not uncommon for us to identify and commercialise promising technology from within GE that can address needs in industrial industries. These ventures are independent, but connected to GE's global resources of ideas, intellectual property and business expertise.

In fact, our team looks for new ways to use our innovative technology by seeking partners that will benefit from our solutions, even if they fall outside GE's established business lines. Our tech licensing model, which keeps our legal team busy as well, frequently bests the "buy or build" approach to startups, which is not always agile enough to keep pace with business today.

And with more than 48,000 active patents globally, there is a wealth of opportunity to apply GE intellectual property in new ways and new industries.

While it may be natural for startup entrepreneurs to look at VCs and see only their cheque books, we hope that we have proven to our partners by now that GE Ventures has more than deep pockets. We have the team and the technology to help bring exciting ideas to life.

This is thrilling work, creating companies and solving problems, and we enjoy the energy that entrepreneurs bring to our offices and research facilities every day. I am continually surprised that being a lawyer at a big company means that I work with so many small and vibrant new companies. And I love it. ◆

COMMENT

You may beat an algorithm today – what about tomorrow?

Sloane Ortel, curator and commentator, CFA Institute, and Ashby Monk, executive and research director, Stanford Global Projects Centre

Technology will upend the way investment decisions are made. How should investment decision-makers respond? This conversation has a tendency to assume an emotional tone even before it gets existential. For instance, you hear genuine angst over Microsoft Office's new layout, and that is just a redesigned application. Innovation has cumulative effects though, and after more than 50 years of Moore's law and numerous other advances, algorithmic decision-making fits too tightly into investment processes to be ignored.

That does not mean it is perfect. One purpose of this essay is to invite you into friendly competition with an algorithm designed by Ashby Monk and his colleagues at Stanford University. Their process can select managers with limited information and little time. You may be able to predict a team's success more effectively.

Whether or not you feel like you beat the machine today, it is worthwhile to have a plan for what happens next so that your organisation can fully capitalise on its native strengths.

In our imagination, the word "algorithm" tends to evoke fast-paced and high-stakes processes. The mundane truth is that the word refers only to a process or set of rules that describe how to accomplish a task. There is no naturally associated time horizon or risk appetite. And that is good, because most public pension funds, endowments and sovereign wealth funds would not count speed or agility among their strengths.

Our goal here is to underscore that they do not need to, and explore what a technological transformation looks like when its primary purpose is to reinforce risk-aware patience at institutions that may outlast many of their assets.

Know who you are

Many organisations have no formalised models or systems for characterising data or judging data quality.

No matter. Competition among market participants to exploit new forms of information and data squarely qualifies as an arms race, definable as a situation in which parties are locked in perpetual efforts to outcompete one another without a defined endpoint. And it gets better. You cannot escape. It is difficult enough to achieve most current risk and performance targets as things are, but alternative datasets and associated analytical techniques are already augmenting the pricing process in many markets.

Transacting in markets you do not understand is not a recommended practice. The fear is that it may become business as usual for many investment organisations unless they develop an internal capability to assess and integrate alternative data. As we all know, fear leads to anger and is the path to the dark side.

One manifestation of this is when entities leap before looking, obtaining datasets without considering the actionability of what they have bought. This can lead to efforts that are poorly aligned with organisational capabilities or priorities and offer little long-term value. The wrong purchase can also drive pursuit of shorter payback periods to offset the costs, and so compress the time horizons of decisions made with them.

Seek defensive defensible value

Accessing novel data should not be a goal in its own right. The idea is to manifest the best possible version of your organisation.

Many large investment organisations struggle with innovation for the simple fact that they lack internal agreement about what direction they should go in. The allure of working with alternative data could make it a common point of agreement in the process of building support for new initiatives internally, and the learning from efforts to integrate it can drive significant future innovation.

The work is not necessarily all that different from what you do already. For instance, consider:

- Assessing the strength of a potential general partner's professional and social network with LinkedIn data and news reports of previous deals before committing to the fund. An allocator is likely to have little *ex ante* clarity about the specific startup companies in which a venture capitalist will invest, and no control over how it does so once capital is pledged. The quality of the venture capitalist's likely co-investors, however, may be easier to discern and serve as an indicator of the ultimate riskiness of its portfolio.
- Conducting due diligence on candidate direct investments in leisure-related properties – say, hotels or casinos – by assembling online price and ratings histories of possible competitors – think Airbnb, TripAdvisor or Yelp – or price-series of airfares to that locale.
- Controlling reputational risk from investee companies by monitoring controversies about them that arise in social media posts or other localised or unconventional news outlets.

Alternative data just adds new colours and textures to the mosaic of information investors have long been evaluating

The precise tools and techniques for executing those research operations may not yet be clear, but hopefully the practice seems less like a dark art and more like defence.

There is still a place for present value, probability and the rest of the body of knowledge that characterises the investment profession. Alternative data just adds new colours and textures to the mosaic of information investors have long been evaluating. It also argues for a degree of operational openness.

Some of the most compelling implementations of alternative data strategies involve the investment organisation itself. Here are a few examples:

- Ensure your cost structure is not a simple function of market capitalisation by continuously monitoring contracts with external asset managers. Fee structures based on assets under management can creep into costs because growth in an account balance does not necessarily reflect manager skill.
- Inventive collation and synthesis of documents like e-mails, investment memos and contracts can uncover precious metadata with insight into communication, culture, negotiation, time allocation, benchmarking and diligence.
- Organisations can map their internal knowledge flows by tracking how internal users query and access documents in organisational databases. This also allows for examinations of typical approaches analysts use in problem-solving. More granular visibility into these activities can expose not only areas for improvement, but also help identify best practices better.

Everyone faces technological competition.

Strategically, this means that investment organisations can invest in homegrown sources of technological leverage, and they ought to. If they do not, the decision should come after a thorough analysis of long-term tradeoffs to the organisation.

From these seats, it is hard to imagine a winning case against it. Data is perhaps the most important input into every investment decision-making process already, and new applications for it are proliferating every day. Unforeseen and sometimes unidentifiable risk still hits portfolios frequently. Unrealised efficiencies abound.

You really should try to outperform the algorithm, but here is some further reading to help you seize the opportunity:

- The Investment Firm of the Future: Alternative Business Models and Strategies for a More Forward-thinking Industry (CFA Institute)
- Rethinking Alternative Data in Institutional Investment (SSRN)
- Ambiguity Tolerance Beats Artificial Intelligence (Enterprising Investor)
- The Technological Investor: Deeper Innovation through Reorientation (SSRN)
- Artificial Intelligence, Machine Learning, and Deep Learning: A Primer (Enterprising Investor) ◆

This in an edited version of an article first published by the CFA Institute

COMMENT

MTN's innovation shift from large to small

Herman Singh, group chief digital officer, MTN

It is now well accepted that small companies are agile, and large ones have scale efficiencies. Small innovates – large scales. Small disrupts – large sustains. Small incubates – large accelerates. MTN was itself a startup 25 years ago. The power of entrepreneurship and a startup mentality in a smaller firm is what powered MTN's growth to a $12bn revenue powerhouse. As growth in its core business began to slow down around 2014, it became clear that MTN would need to seek new avenues for growth. Hence the emphasis on initiatives that could move the dial.

This was a great time to begin the conversations that could help Africa realise the digital dream while at the same time building large-scale digital sustainable businesses. Digital holds the promise to allow Africa to enjoy a significant growth spurt because these solutions are asset light, low cost and easy to deploy and scale. As well, they address basic and key use cases, service the broadest part of the market and are customisable per region.

Realising the digital dream

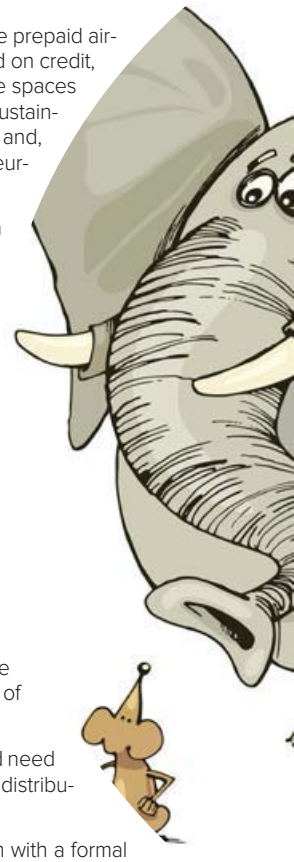
These attributes apply to solutions as diverse as micro-insurance and music-streaming, and replicate the prepaid airtime top-up model. The now successful model of prepaid off-grid domestic solar kits sold via airtime and on credit, for example, are a super example of unique African solutions addressing real African issues. In all these spaces MTN has worked with a multitude of small and medium-sized enterprises to achieve these successes sustainably. For almost three decades, MTN has been a key enabler in uplifting technology adoption in Africa and, more importantly, in driving the adoption of new technology-based products and services. Entrepreneurship in startups has been a key driver of these successes.

MTN's new business development and diversification strategy for the past five years has focused on large joint ventures and mega-startups. MTN has already invested over €500m ($580m) in various startups and is now seen as a leader in this space for Africa and the Middle East. Investments have included online marketplace Jumia, micro-insurance company Ayo, travel website TravelStart, e-commerce company Wadi and ride-hailing service Snapp. We have already had one unicorn – a company worth at least $1bn, and the first from Africa – in Jumia, and a second promises in the form of Snapp in Iran. We have also invested $70m in a private venture capital fund run by UK-based Amadeus Capital, whose Digital Prosperity Fund has already made almost a dozen investments in late-stage startups.

The next unicorn is going to involve a deeper set of engagements with the startup ecosystem

MTN dives deeper into the startup ecosystem

The first wave of investments have followed known and well-understood examples – basically emulating Amazon, Uber, Booking.com, Expedia, and others. Going forward the use cases and associated solutions will be harder to find. The next unicorn is going to involve a deeper set of engagements with the startup ecosystem.



The next phase of growth is being fuelled by smaller firms that adopted a lean startup approach, pivoting solutions from a minimum viable product until they were able to hit a sweet spot before scale – in other words, lots of experimentation. This is not something that large firms are noted for. We need to scale this a few thousand times, and the engagements with smaller firms in startup mode will be a key part of this approach.

The MTN approach is to search for firms taking a uniquely African approach to addressing a broad-based need using digital technology where MTN's assets in network, customer base, brand, go-to-market capability, distribution, identity and payment capability can be leveraged to assist the startup to scale fast.

This is now taking on an even larger emphasis as MTN expands its presence in the startup ecosystem with a formal presence in the ideation, incubation, acceleration and scaling components of the disruption value chain. All this is underpinned by MTN's willingness to invest, and its already wide-ranging and substantial corporate venture and M&A initiatives. A pan-African presence with one of the largest customer bases in Africa provides fertile ground for partnerships, disruptions, startup acceleration and potential corporate investments.

Startups will be able to join our soon-to-be-launched Bright Ideas Innovation platform to propose ideas, secure funding and sponsorship, progress to proof of product, proof of market and proof of scale, and then finally be in a position to assess possible investments once it hits a series A or B funding round.

We are looking forward to creating a rapidly expanding network of startups engaged in serving the needs of our mutual clients better. ◆

Global Corporate Venturing Leadership Society

The benefits of the **Mawsonia** brands under one umbrella

Global Corporate Venturing

Global Government Venturing

Global University Venturing

Global Corporate Venturing & innovation SUMMIT

Global Corporate Venturing ASIA CONGRESS

Global Venturing Review

Global Corporate Venturing Symposium

Global Corporate Venturing Analytics

Global Corporate Venturing Synergize

Global Corporate Venturing Academy

GCV Leadership Society mission:

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.

	Premium* (Company) $13,000 per year	**Luminary** (Company) $50,000 for 2 years
Executive Advisory Role - act as GCV Leadership Society Ambassador for a two-year period	–	✓
Branding on Leadership Society materials as Luminary members	–	✓
Invitations to exclusive leadership society networking events worldwide	✓	✓
Showcase portfolio companies during GCV events	–	✓
Right to join and use the *'GCV Leadership Society'* Name	✓	✓
Get the Weekly Community Newsletter	✓	✓
Entry in the Member App	✓	✓
Pro Bono - Bridging communications to third parties	✓	✓
Enhanced Company Profile in the Directory app	✓	✓
Free Ticket to either the annual Summit or Symposium	TWO	THREE
Assistance in arranging one-to-one meetings and/or private meeting space during GCV events	✓	✓
GCV Subscription** - access the monthly magazine (pdf), news website and special reports	UNLIMITED USERS	UNLIMITED USERS
GCV Analytics for 1 user (add an extra user for $5,000 more) - access 10,000+ deals through GCV Analytics for bespoke reports	✓	✓

* GCV Subscribers can upgrade for a limited time. Subscription fee already paid will be subtracted from the amount due on a pro-rated basis.
** Includes access to Global Government Venturing and Global University Venturing.

Why Join?

- Support your industry
- Help shape thought-leadership and best practice to increase success
- Network with the most influential corporate venturers in the world – these could be your co-investors or partners
- 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

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 GCV Leadership Society unless authorised by its board.

Luminaries include:


Wendell Brooks
Intel Capital


Barbara Burger
Chevron Technology Ventures


David Gilmour
BP Ventures


Jacqueline LeSage Krause
Munich Re / HSB Ventures


Jeffrey Li
Tencent


Michael Redding
Accenture Ventures


Jaidev Shergill
Capital One


Bonny Simi
JetBlue Technology Ventures


Bill Taranto
Merck


Marianne Wu
GE Ventures

For more information or to apply today contact Janice Mawson:
+1 (703) 380 25 69 | janicemawson@globalcorporateventuring.com

Global Corporate Venturing

www.globalcorporateventuring.com

INNOVATIVE REGION

Corporates in Finland remain cool on venturing

University and government venturing successes fail to attract significant corporate interest

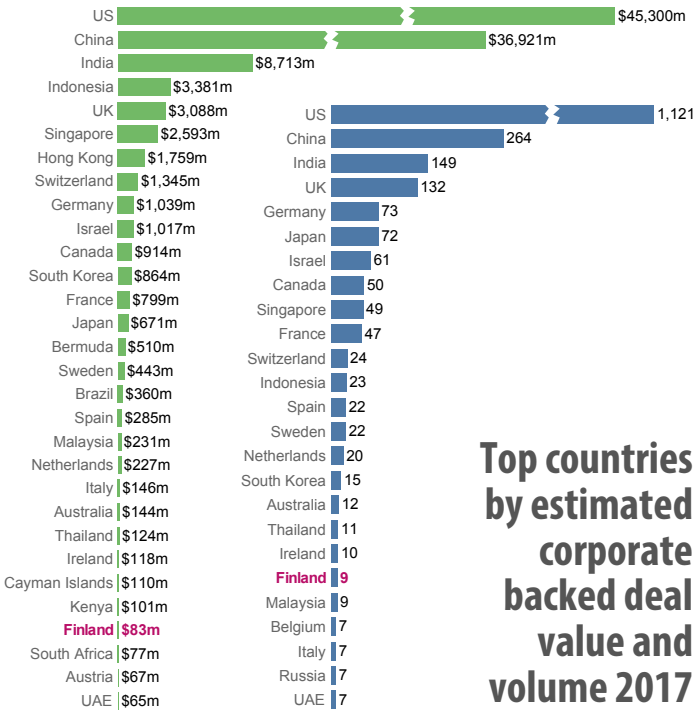
Alice Tchernookova

- ◆20-year program to build the ecosystem
- ◆Now number one in venture funding
- ◆Universities and research centres pull their weight
- ◆Corporate venturing failing to take advantage

Students running one of the world's biggest startup conferences in the depths of the Finnish winter seems an unlikely recipe for success, but the now-global phenomenon of tech and startup event Slush, to be held in December in Helsinki, reflects the country's venturing spirit.

Finland is often considered a role model by EU peers in building a fully functional and balanced socio-economic system. It also has the lowest pay inequality on the continent, and one of the lowest child poverty rates, alongside Nordic neighbours Denmark, Sweden and Norway.

More recently it has grown to be one of Europe's most prominent venture markets. Last year, Finnish startups raised a record €349m ($406m) in venture capital funding, up from €318m in 2017, according to the Finnish Venture Capital Association (FVCA). FVCA figures also revealed that between 2013 and 2017, Finland was, on average, the country that attracted the most venture funding in Europe proportionate to its



Top countries by estimated corporate backed deal value and volume 2017

gross domestic product (GDP).

Finnish VC firms raised a record €169m of new funds last year, while venture rounds – traditionally focused on seed to series A stages – shifted slightly towards larger stakes. Finnish startups benefited from eight of the 23 €10m-plus rounds raised last year, according to the FVCA.

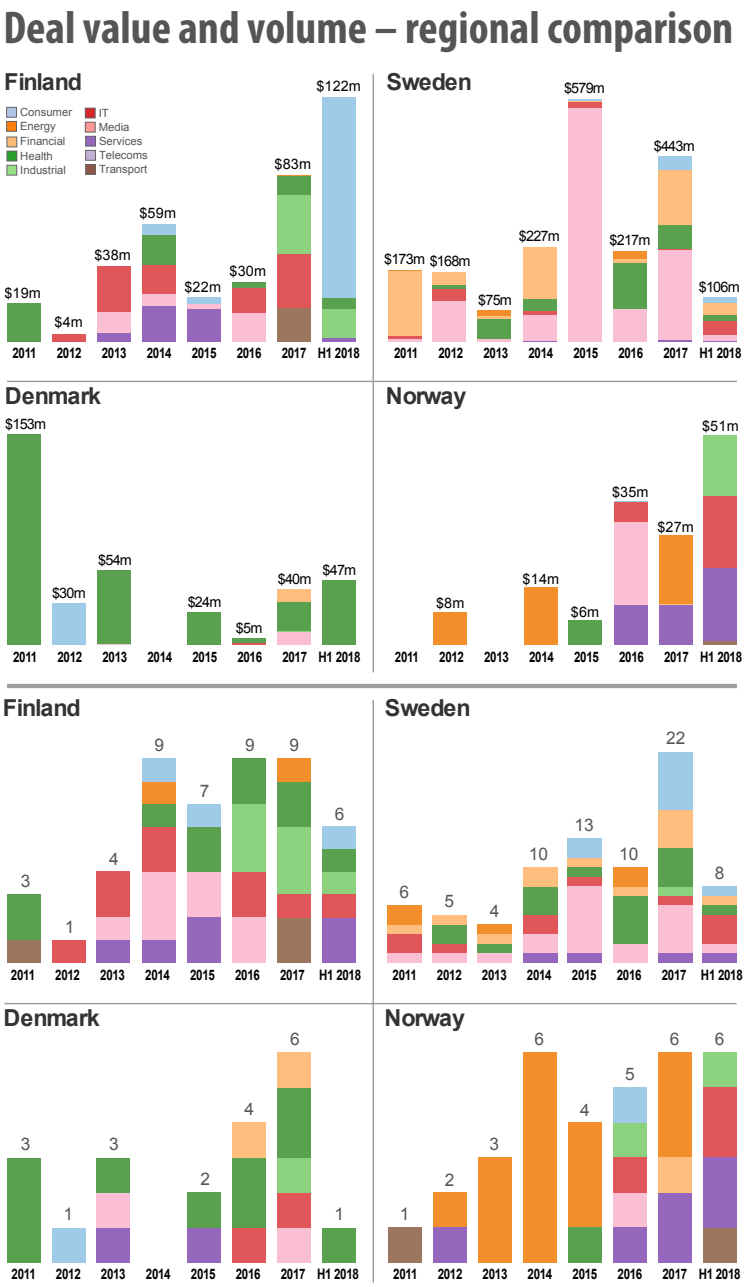
In a statement accompanying the figures' release, Pia Santavirta, managing director at the FVCA, said: "The amount of work put into developing the Finnish startup ecosystem by different supporting stakeholders is unimaginable. It is humbling to see that persistent long-term efforts are working in our favour and bringing results, and that Finnish top-tier know-how attracts VC funding."

Corporate activity

According to GCV Analytics data, last year Finland ranked 28th globally for total corporate-backed funding raised, at $83m, while it was 20th for investment voume, with nine deals.

Such rankings gain perpective when considering the size of the Finnish economy, currently around $252bn. A fairer comparison could be drawn with its Nordic neighbours. In the first half of this year, the country closed nearly as many deals as its Swedish neighbour – whose GDP is twice the size – with six and eight deals respectively. Finland topped the list in terms of total deal value, raising $122m in the first half compared with Sweden's $106m.

Corporate venturing activity has been fairly steady in Finland for the past four years, with nine deals in 2014, 2016 and 2017, and seven in 2015. The number may rise this year – six deals had already been closed in the first half.

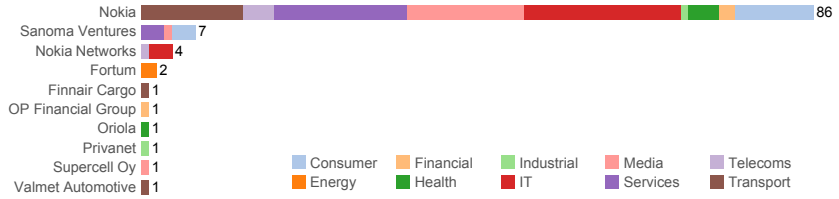


Healthcare and industrials have dominated the market over the past three years, with industrials ranking first in 2016 and 2017, both years featuring three deals. This year there is a more even distribution – one deal in each of the consumer, industrial, healthcare and IT sectors, and two in services.

Corporate funding remains limited relative to the total amount raised by Finnish startups. Last year, this amounted to roughly €71m out of the total €349m – barely a fifth.

Tom Whitehouse, chairman of London Environmental Investment Forum and a contributing editor at GCV, presented a report on CVC activity in Finland at last year's Slush event. He found that between 2011 and the third quarter of 2017, the most active corporate investors included freight carrier Finnair Cargo, financial company OP Financial Group, investment services group Privanet and car manufacturer Valmet Automotive. All closed one deal over the period.

Top corporate investors from Finland 2011-18



More active were Fortum, Finland's largest energy provider, which made two investments, and Nokia's data networking and telecoms equipment subsidiary Nokia Networks, focusing on multinational data networking, which sealed four deals. Sanoma Ventures, the venturing unit of media group Sanoma, launched in 2012 and dissolved in 2016, invested in at least seven startups during its existence.

But the most active corporate investor by far is global telecoms company Nokia, with 83 deals recorded by GCV from 2011 to date. In 2005, the corporate launched investment arm Nokia Growth Partners, which rebranded as NGP Capital last year. Walter Masalin, partner at NGP Capital, insisted that NGP should not be considered Nokia's venturing unit. He said: "From the beginning, NGP was founded as an independent financial VC fund with Nokia as its sole limited partner. It combines the financial discipline of an independent investor with the value-add of a close corporate connection. In a way, NGP could be described either as a special structure within the CVC space, or as a special version of a classical financial VC. While we have a collaborative relationship with Nokia and focus on investment areas that are relevant to it, we always approach deals with a financial investor's mindset."

NGP has $1bn of assets under management, according to Masalin. Some of its landmark portfolio companies include London-based food delivery platform Deliveroo, Chinese electronics manufacturer Xiaomi and Berlin-based language learning app Babbel. Last year, alongside debt provider Kreos Capital, the firm completed the $1.3bn sale of optical packaging and micro-optics specialist Heptagon to Austrian sensor solutions manufacturer AMS – one of the largest European exits in the sector.

"Corporate venturing is a key building block in the innovation toolkit of a modern company"

This year energy provider Fortum set up a strategy and ventures team headed by Anne Jalkala, vice-president for startup and fund investments. It is understood the company is preparing to launch its own corporate venturing fund, with plans to "take its investment activity up to new levels", according to Jalkala. She said: "Corporate venturing is a key building block in the innovation toolkit of a modern company. We are adopting a best-practice approach by building an experienced investment team and an independent venture fund structure, which will focus on future mobility, solar technology and biotech."

Other Finnish corporates that have jumped on the innovation bandwagon include pulp and paper manufacturer Stora Enso, through its private equity and VC arm Stora Enso Ventures, and lifting equipment and cranes specialist Konecranes, which earlier this year launched Konecranes Reach Program, calling on startups to pitch their technologies to the company. In 2012, Helsinki-based software development and design group Reaktor launched strategic investment arm Reaktor Ventures.

A company that has made significant contributions to the venture space is Wärtsilä, which manufactures power sources and other equipment for the marine and energy markets. With a view to boosting smart technology in its field, the corporate recently put launched its "tiered venturing model" consisting of five initiatives – investing in accelerators and incubators focused on the marine and energy sectors, launching the Wärtsilä SparkUp Challenge at Slush to enhance collaboration between startups and universities, establishing strategic partnerships with startups and small businesses, forming joint ventures with corporate partners, and engaging in traditional M&A activities.

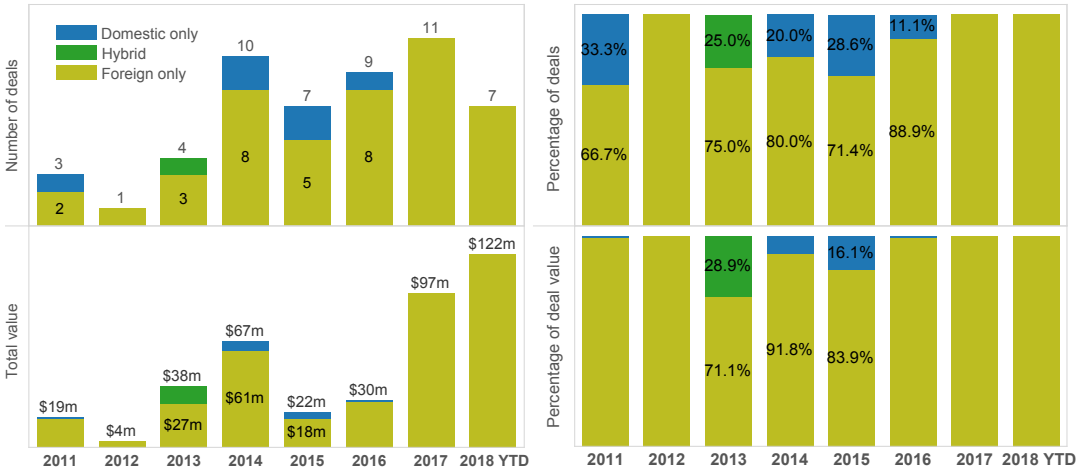
As part of its strategy, Wärtsilä last year established a joint venture with China State Shipbuilding Corporation. The company also heads two digital accelerators in Helsinki and Singapore, and earlier this year sealed a partnership with TheDock Innovation Hub, an Israel-based maritime-focused accelerator. Steffen Knodt, digital ventures director at Wärtsilä, recently said: "Corporate venturing and working with accelerators like TheDock are vital forms of collaboration in seeking new growth paths in industries that are profoundly impacted by digitisation. Agile exploration of new technologies and business models with startups is crucial."

Rise of foreign investment

Even though momentum is building in certain sectors, most Finnish corporates seem to be venture-shy, with a lack of locally-sourced funding characterising the country's CVC activity. This reticence applies to the entire venture space – of the total €349m of VC funding raised by Finnish startups last year, €208m reportedly came from abroad.

Whitehouse's report reveals that eight of the nine CVC deals closed in 2016 were funded by foreign investors. Last year, all deals were closed with foreign investment. Analysis of the top corporate investors in Finland since 2011 shows only three of 16 corporates closing at least two deals in the country were Finnish. These were Sanoma Ventures, Nokia and Faurecia Ventures, investment arm of automotive supplier Faurecia. Of the total 16, six were from the US, three from the Asia-Pacific region, two from Canada and the rest from Europe.

Foreign versus domestic investment analysis 2011-18



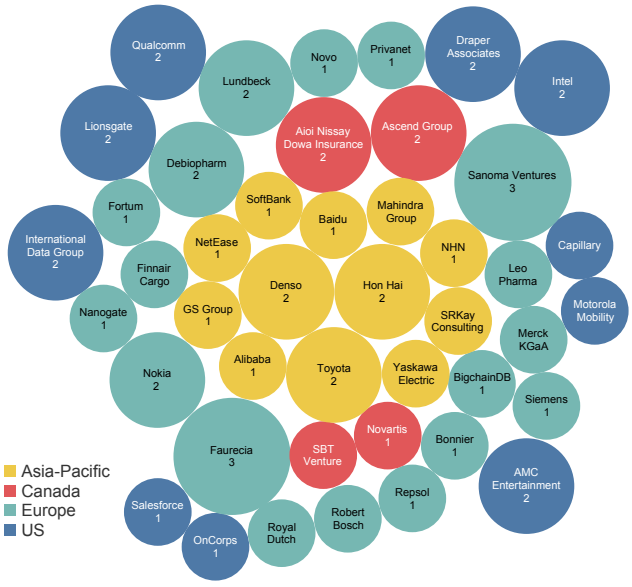
Chinese investors in particular have shown strong interest in the Finnish market, including internet groups Alibaba, Baidu and Tencent.

Following a visit to Helsinki in 2013, Alibaba's chief technology officer Jeff Zhang said: "I always thought Silicon Valley was the epicentre of global innovation. After Slush 2013, I changed my mind."

Last year, Alibaba led a $27m round for database startup MariaDB – its most notable investment abroad till then. Through its cloud computing subsidiary Alibaba Cloud, the corporate also formed an alliance with Finnish development and operations services provider Eficode to set up a joint innovation centre in Helsinki, aiming to boost collaboration between Nordic and Chinese tech companies.

In 2014, Tencent and the International Game Developers Association co-organised an gaming industry event at Slush addressed by Tencent's vice-president of business development Dan Brody. The company has made significant local investments too, acquiring majority control of Finland-based games group Supercell from SoftBank.

Top corporate investors in Finland by number of deals 2011-18



Search engine provider Google continues to grow its datacentre presence in Finland, while telecoms equipment specialist Huawei is expanding its research and development activities around camera, audio and imaging technologies.

Linking Beijing and Helsinki, the Sino Track accelerator program, run by Chinese business accelerator Comb-plus, has helped around 20 Nordic startups expand into China since 2016. A Sino Track Goes Slush event at Slush also aims to help local companies find the right network and support to export to China.

According to Helsinki Business Hub, a regional development agency for the Finnish capital region, the China-Finland Golden Bridge initiative launched in 2011 by the government has brought at least €120m of Chinese investments to Finland. Major deals included the acquisition of an 84% stake in Supercell by Tencent for €8bn, the purchase of silicon wafers maker Okmetic by National Semiconductor Industry Group for €170m, and that of automotive user interface software Rightware by smart device platform technology provider Thundersoft.

In a recent interview with tech website Computer Weekly, Jari Gustafsson, Finland's permanent secretary of the Ministry of Economic Affairs, said: "For the Chinese, Finland is interesting due to its potential as a product development centre based on its high level of skills and innovativeness, as well as on its geographical position as a gateway to European markets."

Such partnerships help Finland extend the outreach of a relatively small domestic market, but while their overall economic impact may be positive, they could also be seen as a potential impediment to the growth of the local corporate investor base. Jukka Jokinen, senior venture adviser at Helsinki Business Hub, said: "The government is still heavily involved in the ecosystem's development in Finland. I guess what we would need is an economy that is more market-based, but for that we also need more market players – meaning more international investors, and also more Finnish CVC units. Many of the investments currently made by Finnish corporates are off balance sheets rather than through dedicated venture arms."

For Jokinen, it is not the lack of means that prevents Finnish corporates from getting involved in venture, but rather their hesitant attitude. He said: "An underlying issue is that Finland is still slightly conservative towards the very concept of CVC, with some industries operating in a relatively traditional manner. Companies should be more proactive, bolder, but I get the feeling they are in no rush to get involved. For them, there is no sense of urgency or pressure of going to market, as they are doing well either way.

"In fact, their balance sheets are stronger than ever and many of them definitely have a lot of excess capital to invest, particularly in the engineering, energy or IT spaces. But the problem is that they generally lack the necessary knowledge to engage in this activity. Even for the ones who do get involved, there is too often a lack of clear strategy and of persistence."

Jokinen believes Finnish corporates still need to be educated in the concept and practice of CVC. The Finnish government has been proactive in that respect in recent years.

Government

Top 10 government-backed deals in Finland 2011-H1 2018

Company	Round	Sector	Subsector	Size	Investors
M-Files	B	IT	–	$36m	Draper Esprit | Finnish Industry Investment | Partech Ventures
Aledia	B	Consumer	–	$31m	Bpifrance | Braemer Energy Ventures | CEA Investissements | Demeter Partners | Ikea | Sofinnova Partners | Valeo
Kiosked	B	Services	–	$30m	European Investment Bank
Visedo	–	Transport	–	$21m	Emerald Technology Ventures | Finnish Industry Investment | Green Campus Innovations | Ilmarinen | LähiTapiola | private investors | Sinituote | Suffice International | VNT Management
MaaS Global	–	Transport	Public mobility & parking	$17m	Aioi Nissay Dowa Insurance | Denso | Karsan | Swiftcom | Toyota | Transdev | Veho
Enevo	B	Services	Logistics & supply chain services	$16m	Earlybird | Finnish Industry Investment | Ginko Ventures | Lifeline Ventures | Mistletoe | angel investors
Forendo Pharma	A	Health	Pharmaceuticals	$15m	Finnvera | Karolinska Development | Merck | Novartis | Novo
ICeye	–	Industrial	–	$15m	Draper Associates | Draper Nexus | Lifeline Ventures | Space Angels Network | Tekes | True Ventures
LeadDesk	A	Services	–	$6m	Dawn Capital
Vaadin	–	IT	–	$6m	Eequity | Finnish Industry Investment

For over a decade, the Finnish state has been striving to push the country's venture activity at national level and beyond. As a starting point, in 2008, the Ministry of Economic Affairs and Employment rolled out its Innovation Strategy plan, presenting it as a project aiming to "create an environment that encourages enterprises to engage in bold innovation, renewal and international growth, relying on education and skills as their foundation". This strategy remains at the core of Finland's innovation policy, coordinated by the Finnish Research and Innovation Council, an advisory body chaired by the prime minister.

Finland's tax system is relatively business-friendly. Corporate income tax is 20%, personal income tax between 30% and 34%. Companies engaged in R&D activities can offset costs against tax.

A Science, Technology and Industry Outlook report published by the Organisation for Economic Co-operation and Development (OECD) in 2010 found that since 2000, gross expenditure on R&D in Finland had increased consistently to reach 3.7% of GDP in 2008, while business expenditure on R&D was above average during those years and peaked at 2.8% of GDP in 2008. The report concluded: "Finland's innovation investment and performance are among the strongest in the OECD area, with venture capital intensity above average and the government's R&D budget being large."

In many ways, the government's consistent investments in R&D and innovation have started to pay off. Erkki Aaltonen, director of venture investments at the agricultural products and chemicals supplying company Yara International, for which he oversees the foodtech and agritech-focused venture arm YaraGerminate, said: "There is some very good support coming from the government. For new technologies in particular, companies can benefit from R&D grants and loans that can cover up to 70% of R&D costs."

The state has also launched a fund-of-funds initiative which, according to Aaltonen, has boosted the creation of small and micro-funds of €5m to €10m. "This has had a very positive impact on seed and early-stage funding," said Aaltonen.

"There have been numerous good initiatives over the past 15 years, and even more so over the past five. Finland typically ranks among the top three or five countries in terms of R&D funding in Europe. The government has been investing in many deep-tech projects developed by state-owned research centres and universities, which has helped shape a solid research basis. When you invest big amounts into these things, you usually get some good results."

Different organs, different goals

Government help in Finland is distributed via several vehicles, the main one being Business Finland, the Finnish funding agency for technology and innovation previously known as Tekes (Finnish Technology Agency) under the auspices of the Ministry of Economic Affairs and Employment.

Business Finland was a result of the merger of Tekes and Finnish trade promotion organisation Finpro earlier this year. Tekes was founded in 1983 as the country's largest publicly-funded organisation for R&D and innovation funding, focused primarily on early-stage companies. Finpro's role was to help Finnish small-to-medium enterprises (SMEs) export, and to promote foreign investment in Finland. Finnvera, the state's official credit export agency and financing services provider for SMEs, also became part of the new entity.

According to Business Finland's CEO Pekka Soini, the main motive behind the merger was to boost collaboration among research institutes, universities and companies. The entity describes its mission as twofold – enabling global growth for Finnish companies and creating a world-class and competitive business ecosystem in Finland.

A number of smaller entities exist under the Business Finland umbrella. Invest in Finland, for instance, is dedicated to promoting foreign investment in Finland. Business Finland Venture Capital is a fund of funds investing in early-stage VC funds. Growth Capital Program focuses on matching foreign investors – VCs, CVCs or industrials – with Finnish growth companies. Earlier this year, the organisation also launched the Finnish Startup Permit – a program through which non-EU entrepreneurs willing to establish a startup in Finland can apply for a residence permit.

"Now that we have reached a certain level of networking at national level, we are trying to build it up even more"

Every year the organisation also organises a competition – Challenge Finland – which aims to encourage interactions between research institutions and the private sector. Last year, the initiative provided total funding of €47m to 33 R&D consortia.

Public-private collaboration has become a priority at Business Finland, which recently announced it would favour research projects run in association with private enterprises. Hanna Rantala, director of health and wellbeing programs at Business Finland, said: "We are trying to create an ecosystem where all actors can combine their efforts and skills to collaborate on key research areas that can benefit everyone, and to think of the best ways of doing business together in a globalised market.

"The fact that certain companies have started working with each other and developing joint projects has created new ways of doing business and opened up new opportunities for VC. We have done a lot of work in-house to promote those types of ecosystems. Now that we have reached a certain level of networking at national level, we are trying to build it up even more and to help our companies become more global."

Aside from Business Finland, government venturing is carried out through Finnish Industry Investment, commonly known as Tesi, which invests in growth-stage companies either directly or through VC funds, operating as a minority owner within the VC and private equity spaces. Last year, this organisation made €149m of new investments, and helped its international partners invest €72m in Finnish companies.

Other noteworthy government institutions include VTT Ventures, investment arm of the state-owned VTT Technical Research Centre of Finland, focused primarily on university spinoffs engaged in commercialising VTT's research results. VTT's spinoffs are usually pre-seed, seed or early-stage tech companies. The group has completed 57 investments and 14 exits to date, according to data provider PitchBook.

The Finnish Innovation Fund, known as Sitra, is an evergreen fund whose operations are funded by returns from an endowment currently valued at €771m and originally granted by the Finnish parliament. The fund functions both as a think-thank and as an investment company, producing research, events and training centred on three core topics – capacity for renewal, carbon-neutral circular economy, and sustainable economy. Sitra is not directly state-funded and is not answerable to the government.

The Academy of Finland is a funding body for scientific research forming part of the Ministry of Education, Science and Culture. Its research funding is currently €444m. There are also small-scale funding initiatives at regional level.

"The government has been very active in supporting the ecosystem," said Jalkala. "But innovation is not a one-man job – it requires the participation and involvement of all parties. In that sense, the strong role it has played in the education sector has been key. By supporting high-quality research and universities, it has contributed to producing and educating top talent that will make the entrepreneurs of tomorrow."

Universities

In Finland perhaps more than in other countries, the role of universities within the venture ecosystem seems fundamental. Finland is home to a well-educated population. With 10 multidisciplinary and six specialised universities, the country was ranked sixth out of 46 by the OECD for the level of tertiary education attainment among 46 to 55-year-olds (38.5%), and 10th for 25 to 64-year-olds (44.3%) in 2017.

In a 2008 interview with Finnish technology online forum Hightech Finland, Esko Aho, prime minister between 1991 and 1995 and a former head of Sitra, said: "Finland's excellent record in education cannot be emphasised enough as a fundamental factor in Finland's competitiveness and technological excellence." Ten years on, this statement is still valid.

Many innovation initiatives can be attributed to university students. One of the most important is Slush, which has become a landmark event for the startup and VC community worldwide. Dubbed the "true embodiment of Europe 2020" by the Wall Street Journal, Slush describes itself as a student-driven non-profit movement originally founded to change attitudes toward entrepreneurship. Over the past 10 years, the event has grown from a 300-person gathering to a global community, with 75 events and an estimated 40,000 attendees globally.

Slush has been exported to Shanghai, Tokyo and Singapore, with "each city and each community adding its own local flavour to the global network", according to its organisers. Fortum's Jalkala said: "Slush is a great example of the type of startup activity that has been developed by students in Finland. It is one of the largest events of its kind worldwide and has benefited us in many ways as a great platform to meet new startups and co-investors. It really shows how students, companies and government can work together to pull off something truly valuable for the ecosystem."

Another student initiative is the Helsinki Challenge – a science competition in which teams from 10 Finnish universities develop projects in line with the UN's sustainable development goals. Last year, the competition was hosted by University of Helsinki. Jalkala added: "I have seen a major rise in popularity of entrepreneurial spirit and culture take place over the past 10 years. The mindset towards entrepreneurship has radically changed and it is now seen as a proper career path. A real trend has shaped up, with millennials and digital natives being eager to join or form a startup, having been inspired by some national success stories. Conditions for entrepreneurship are very favourable in Finland, and I have very high hopes for the future."

Top university-backed deals in Finland 2011-H1 2018

Company	Affiliated institution	Sector	Round	Size	Investors
TactoTek	European Commission, VTT Technical Research Centre of Finland	Industrial	–	$41m	Ascend Capital | Conor Venture Partners | Faurecia | Nanogate | Plastic Omnium | undisclosed
AgroSavfe	VIB	Industrial	B	$12m	Agri Investments | Biovest | GIMV | Globachem | Madeli Participaties | QBIC | Sofinnova Partners | VIB
Canatu	Aalto University	IT	–	$11m	Infosto Group | InVenture | undisclosed
IndoorAtlas	University of Oulo	IT	A	$10m	Baidu
IndoorAtlas	University of Oulu	IT	B	$9m	KoppiCatch | Innovestor Ventures | Mobility Ventures | Takoa Invest | Yahoo Japan | undisclosed strategic investors
Desentum	VTT Technical Research Centre of Finland	Health	A	$2m	Acme | Cascara Ventures | Sto-Rahoitus | VTT Ventures
Asqella	Tsinghua University	IT	–	$2m	Shenzhen Leaguer Venture Capital | Tsinghua University

Tech transfer

A key change for university venturing came in 2009 when the government introduced the Universities Act, modifying the legal status of universities and enabling them to make financial commitments, own property and do business. Universities also benefit from funding provided by a Business Finland branch, New Business from Research Ideas Funding. The funding aims mainly to help projects prepare for commercialisation. Business Finland can fund up to 70% of the project's costs.

While most universities in Finland have some form of innovation or venture activity, two stand out – University of Helsinki and Aalto University, respectively ranked first and second by Times Higher Education this year.

University of Helsinki is home to Helsinki Innovation Services (HIS), a tech transfer office that, in the words of its CEO, Jari Strandman, is "very similar to Oxford University Innovation [University of Oxford's tech transfer office]". The unit's primary role is to evaluate research ideas and match them with researchers who can develop them to commercialisation. "We essentially need to prove the case in a commercial setting," said Strandman. "We prepare it from the laboratories all the way to market stage, so that it is easier to present to investors and entrepreneurs. After the commercialisation process, which is still at university-level, we spin the project out if we think it could be a promising company."

Strandman said the difficult task was finding the right entrepreneur, usually from outside the university. "Our typical company founders are entrepreneurs who already have some experience under their belt, having perhaps founded a startup or two before," he said. This is perhaps the main trait that distinguishes HIS from Aalto University's tech office

INNOVATIVE REGION

Aalto Innovation Services (AIS). While HIS works mostly with experienced researchers and entrepreneurs, AIS is more focused on student innovation and development.

HIS, focusing mainly on life sciences, pharmaceuticals and medical devices, typically supports around 20 projects at a time, providing funding of €300,000 to €1m each. A separate entity, the University of Helsinki Funds, occasionally offers additional grants to students and researchers.

At Aalto University, AIS is responsible for the management of inventions, intellectual property and tech transfer. It has previously supported companies such as satellite data interpretation tools maker Iceye, which recently raised €13m in VC funding, and surgical drills and tools specialist Surgify Medical, which raised €1.2m.

Aalto also pushes venture in other ways. The Aalto Ventures Program, for instance, is an in-house service helping teaching staff and faculties integrate entrepreneurial elements into educational programs. Another landmark entity at Aalto is the startup hub Startup Sauna. It began as a one-week bootcamp in 2010, and has developed into an accelerator connecting university-born startups with entrepreneurs, investors and industry experts.

A total of 240 startups – 150 of which are still active – from 27 countries have been incubated by Startup Sauna, having collectively raised €240m of VC funding. Earlier this year, Startup Sauna dropped its accelerator activities, limiting its role to co-working space for startups and hosting student societies, events or hackathons. During the summer, it is home to 10-week incubation program Kiuas Accelerator.

Sini Liu, director of community at Startup Sauna and a former Aalto student herself, is proud that the organisation is entirely student-led and created. "The warehouse in which we operate is owned by the university, which covers all costs, but it is students who have turned it into a startup hub, and who to this day run it from bottom to top," she said

"Our region is now clearly one of the globally recognised startup hotspots ... we are seeing more IPOs and exits"

Announcing the closure of its accelerator, Startup Sauna said: "After 16 batches, it is time to hang up the towels and let the wood burn out one last time. Back in the day, we launched Startup Sauna to fix a problem. There were not many domestic investors in our region and the region did not appear on the radar screen of international VCs. The ambition and talent has always been evident but funding was broken, which was holding back the rest of the ecosystem.

"Looking back on our journey, our region is now clearly one of the globally recognised startup hotspots. There are more funds available than ever before – both domestic and international. The region is nurturing new unicorns [companies worth at least $1bn] and we are seeing more IPOs and exits. Thanks to all our startups, coaches and partners, we can proudly conclude that the original mission of Startup Sauna has been accomplished."

Maybe the Startup Sauna folks were right, and universities really are the keystone of Finland's flourishing VC market. Yet a key piece of the puzzle is still missing. HIS's Strandman said: "Corporate funding is a source of funding we have not quite tapped into yet – not because we do not want to. Such collaborations would bring great opportunities and partnerships to our spinoffs. The reason is more that, to my knowledge, corporate investment in spinoffs is close to non-existent in Finland. There may be a couple sources, but they most certainly do not get involved in the early stages of development that we deal with."

Why are corporates so late to the VC party in Finland, and how can this be changed? Jalkala and Jokinen came up with some answers.

"I believe our market has some strong features that have been overlooked," said Jokinen. "We have a very transparent ecosystem, in which the government and public sector are heavily involved, but where the resources they provide can be leveraged to create quality businesses, and where you have a large pool of talented and educated people available.

"We have some strongholds and key assets to create a fully-fledged ecosystem, but CVC units need to understand how to use these local strengths to their advantage, and how to attract more talent to the country, rather than invest abroad."

Jalkala added: "There are not many corporates involved in CVC in Finland yet, but I believe there is growing interest as companies start to understand how essential this is for them in order to remain competitive. Many corporations are awakening to the fact that startups develop and commercialise new technologies faster than them, and that they need to engage with them in a more systematic way.

"But all of this requires more definite and enduring commitments from top management. They need to establish clear strategies and to allocate appropriate resources, in addition to adopting a longer-term perspective. Venture requires patience. Traditional industries such as energy, industrials or forestry, also need to wake up to this."

At a time when international investors are showing more interest in Finland, will local corporates step up to the challenge and gain their domestic market back? Perhaps the Finns' legendary "sisu", a famously untranslatable Finnish term referring to an unshakeable determination and resilience in the face of hardship, will help them through. ◆

UNIVERSITY CORNER

Stacking the odds in universities' favour

Thierry Heles, editor

Not that long ago, the summer months for Global University Venturing featured little activity as students left campuses, and faculty and staff headed to the beaches. In fact, even last year that statement largely remained true. Many universities published reviews about their financial year and some spinouts continued to raise funding, but you would not have struggled to catch up on dealflow if you left for a week or two of holiday.

What a difference a year makes. Since Global University Venturing published its July issue, fundraising initiatives alone have resulted in 17 news reports – a staggering rate of more than one new fund a week.

The funds are not exclusively small vehicles of a couple of million dollars, where it might take only one or two limited partners to pool the cash – for example, Main Sequence Ventures increased its Csiro Innovation Fund by $94.8m to $167m, while Imec brought its Imec.xpand fund to $135m and Ahren Innovation Capital emerged out of the UK's Cambridge ecosystem with $129m.

The money, as always, is only part of the story. Italy, a country where technology transfer remains in its infancy, made a splash with two separate vehicles that could fundamentally change the local innovation landscape.

First was Astra Ventures, a proposed $93m fund expected to launch by the end of the year to invest in space technologies. The fund will be managed by venture capital firm Primomiglio and will back spinouts, startups, and small and medium-sized enterprises.

Activity has been steadily ramping up during September

Perhaps even more impressively, Politecnico di Milano has unveiled the $70m university venture fund Poli360 in partnership with venture capital firm 360 Capital Partners. The fund may be smaller than Astra Ventures but has the unique honour of being the first of its kind in the country – a sign that Italian institutions are ready to step up to the plate and draw more than one big headline in the near future.

While our quarterly data review is not due until next month, this is still a good moment to cast a brief look at some numbers. Over the course of July and August, a total of $1.29bn was invested and $536m was generated through exits – compared with the same period last year when $832m was invested and $694m was generated through exits.

What is more, this year funding had reached more than $6.67bn across 474 deals by the end of August – up from just under $4.9bn for all of 2017 and steadily approaching the peak of 2015's $9.38bn. If we include exits, the figure for the past eight months jumps to a massive $18.3bn. That is over $4bn more than the previous record of 2015, which stood at almost $14bn and hardly compares to 2017's $7.77bn total.

Although the summer months were not quiet, activity has been steadily ramping up during September and, with more than three months still to go, it looks as though both our predictions from the July issue – most deals and most money raised in a calendar year to be broken by the end of 2019 – was a sure-fire bet.

We should have wagered something. ◆

GOVERNMENT HOUSE

Europe's most important budget

James Mawson, editor-in-chief

Pascal Lamy, the so-called "gendarme" of the European Commission (EC) in the 1980s and 1990s, might have passed on the mantle of most powerful chief of staff and controller to Martin "the monster" Selmayr, now secretary-general of the world's second-largest economy, but his influence remains on important areas of policy, particularly innovation.

In his influential report on innovation policy and funding for the EU's next seven-year budget, Lamy laid out the case for more funding of research and development, and the fabrication and application of ideas in society, as "innovation dynamics are changing big time".

In the working group's interim evaluation of current funding of research and innovation (R&I) – called Horizon 2020, the year the seven-year budget runs out – Lamy identified that an additional €62.4bn ($84.7bn) would have been required "to fund all the high-quality proposals evaluated" even if the current funding – about €70bn in constant prices – will create at least €400bn in socio-economic returns by 2030 – about €350bn of potential returns were lost by underfunding in the current economic cycle.

In some ways it is a surprise that the argument still has to be made. In its economic rationale, the EC said two-thirds of economic growth in Europe from 1995 to 2007 derived from R&I, broadly defined, and so an increase in research of 0.2% of gross domestic product (GDP) would result in an increase of 1.1% of GDP – five times as much in absolute terms.

And potentially more seriously, Lamy's report said: "Horizon 2020 is making progress, albeit slowly, in spreading excel-

GOVERNMENT HOUSE

lence and widening participation and is making slight progress compared to FP7 [the previous seven-year budget] in generating science with and for society."

But slight progress is probably insufficient. Lamy's report noted the "celerity of change, increased complexity and higher concentration of benefits in key innovators radically influence the impacts of R&I investments and can lead to 'negative externalities' in the form of extraordinary network and scale effects, erosion of human capital, and fast and creative destruction".

Probably Lamy's most important recommendation was for the EC's next seven-year budget – called Horizon Europe – to think about the issues that most affect EU member states. "Our society should increasingly become a living laboratory for innovative solutions to the many challenges we face in Europe – be they economic, environmental or social. Through broad-based impact-focused research and innovation policy and investments, we can turn these challenges into innovation opportunities."

European commissioner Carlos Moedas, who asked Lamy to chair the working group, has taken this recommendation and commissioned Mariana Mazzucato, professor at University College London, to produce a report, Mission-Oriented Research & Innovation in the European Union – A problem-solving approach to fuel innovation-led growth. Moedas described this mission-oriented approach as "a valuable vision at a crucial point in the drafting of the next EU research and innovation program".

He added: "Her report provides clear insight in how research and innovation missions can create impact with societal relevance and how to design and implement such missions. I believe this will be another important step in the evolution of how we invest in research and innovation at the European level."

"This will be another important step in the evolution of how we invest in research and innovation at the European level"

In her report, Mazzucato talks about the structural issues around setting "missions" out of societal challenges rather than fixing existing problems and then using hundreds of bottom-up experiments to fulfil the goals set over the long term. Choosing who is in the room setting the goals to maximise impact, building capacity, picking the willing and holding those in charge accountable then become important. Risk, return and impact become the measuring tools.

The EC has recognised the need for experimentation and using small companies as a way to achieve this. In May's impact report on the EC's accelerator for small and medium-sized enterprises (SMEs), called the SME Instrument by the bureaucrats, set up in 2014, the results have been encouraging. The SME Instrument has taken the model of US accelerators, such as Techstars, and applied public grant funding and business coaches to improve a startup's chance of success.

Each €1 invested by the SME Instrument generated €1.6 of private investment and the companies funded with a second phase of money have experienced a 118% increase in turnover and a 158% increase in employment, which is higher than for a control group of peers analysed for the report in the period to the end of 2016.

This year, the SME Instrument, which has budget for €3bn until 2020, became part of a European Innovation Council (EIC) pilot as a "one-stop shop to bring the most promising ideas from lab to real-world application and support the most innovative startups and companies to scale up their ideas".

Under the planned budget for Horizon Europe, the EIC will have €10bn from 2021 to 2027 to provide funding through two instruments, one for early stages and the other for development and market deployment. The requirement for both is "excellence", according to venture capitalist Hermann Hauser, chairman of the working group setting up the EIC.

This builds on the main requirement for those seeking funding from the European Research Council (ERC). The ERC will have €16.6bn for "frontier research projects defined and driven by researchers" between 2021 and 2027. Under the "missions" mandate, the EC plans to commit €52.7bn under its Global Challenges and Industrial Competitiveness pillar.

Adding in collaboration with other European programs, and leveraging the money with private finance, the EC expects to compete more successfully in the winner-takes-most competition for new markets under development.

Certainly, something needs to be done for the continent to challenge the first and third-largest economies, China and the US, respectively, as the EU has been overtaken over the past decade through China's faster growth rates.

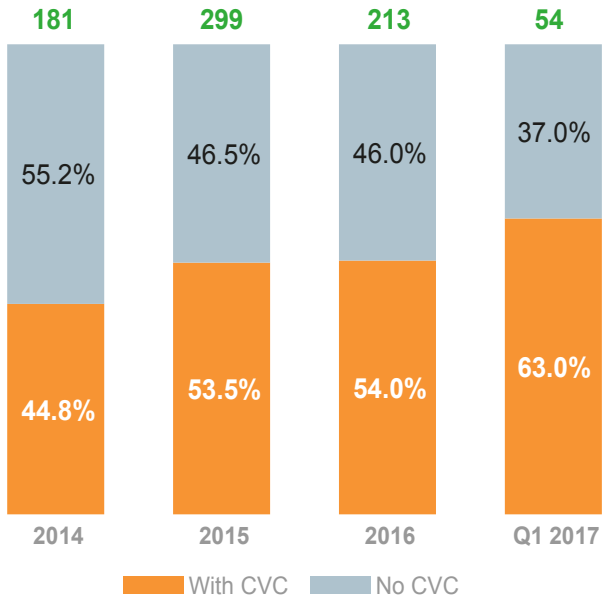
Europe has also-ran status in a number of core areas, particularly in the rise of digital companies over the past two decades that have driven growth and productivity in the world.

Mary Meeker, venture capitalist at Kleiner Perkins, in her internet trends report found the US and China hosted the headquarters of the 20 largest companies by valuation. Meeker gave one example of Europe's failing performance in innovation relative to its peers – digital payments. She said the transaction value in Europe's "mobile POS [point-of-sales] payments" segment was estimated at $43bn this year, according to Statista, compared with nearly $16 trillion in China last year.

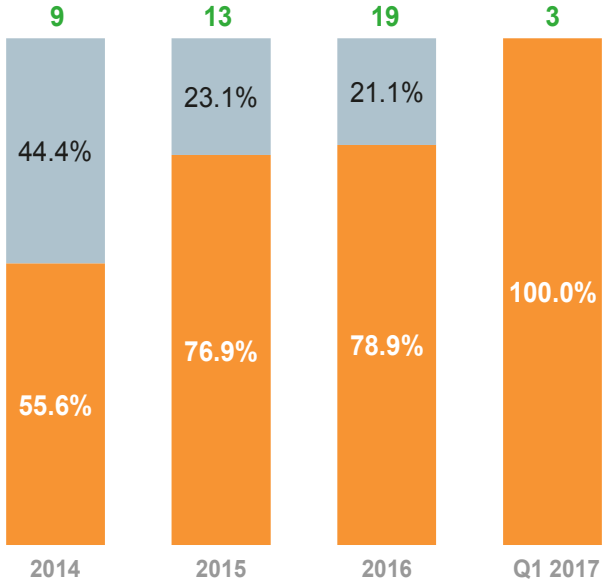
But with about $5.4bn of cash on European corporate balance sheets, according to Capital IQ, the EC has correctly identified promise in matching events focused on connecting SMEs to large companies.

GOVERNMENT HOUSE

Percentage of $100m-$999m deals by participant type



Percentage of deals above $1bn by participant type



Source: GCV Analytics; PitchBook

As Fabian von Gleich, Airbus's head of strategy and development at Hamburg, said: "When we organised the Airbus Corporate Day with the SME Instrument business acceleration services, initially we wanted to meet 15 companies, but so many attracted our attention that, in the end, we ended up inviting twice as many. Many are ideal candidates for corporate venture capital (CVC) investment."

More broadly, the European Investment Fund's 2017 report claims: "CVC investment could contribute to the scaling up of European companies with high growth potential to become global leaders.

"However, Europe's corporations are not benefiting from the success of European scaleups. Only a comparatively small share of high-growth companies' finance is provided by CVC investors in Europe."

And whether by corporations, or the management or owners that control them, the cash is available. This is driving a higher number of large rounds.

The moon landings were called the greatest technological feat of the 20th century and required 4.4% of US GDP at its peak in the mid-1960s, and political rivalry between the US USSR as a catalyst.

Now, we are on the cusp of singularity and artificial intelligence changing human civilisation, but Europe is struggling to put 3% of its GDP into R&I.

And with technology impacting the three big drivers of human evolution – health (living longer and better), transport and communications (with each other and computers and robots) and energy (with solar pricing below coal and other fossils without subsidies) the consequences now of falling behind in innovation could mean the sort of second-class economic and political status that followed those that missed the first industrial revolution.

The Horizon Europe budget, therefore, is easily the continent's most important and, thanks to the choices made after the Brexit referendum, is being prepared without the effective input of the UK, the country that instigated the first revolution.

Given the EC's thoughtfulness so far, however, having one fewer cook in the kitchen has yet to affect the innovation recipe. ◆

Editor's note: This is the follow-up piece to notes prepared for a talk to the European Commission in Bulgaria in June – thank you for feedback.

MONTHLY ANALYSIS

**This is our data snapshot based on last month's investment activity.
The charts and tables have been generated by our data platform GCV Analytics.**

Dealflow maintains pace in September

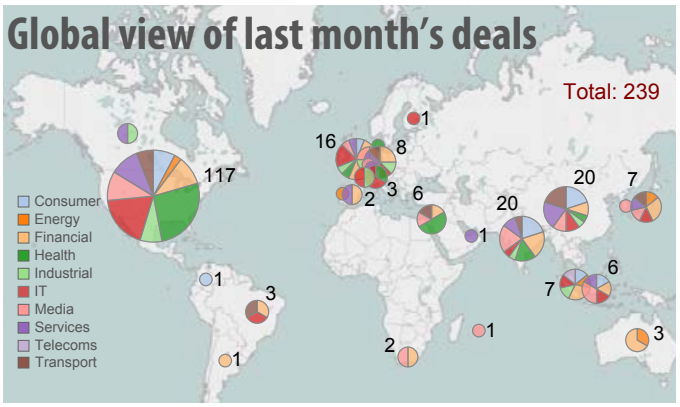
Kaloyan Andonov, reporter, GCV Analytics

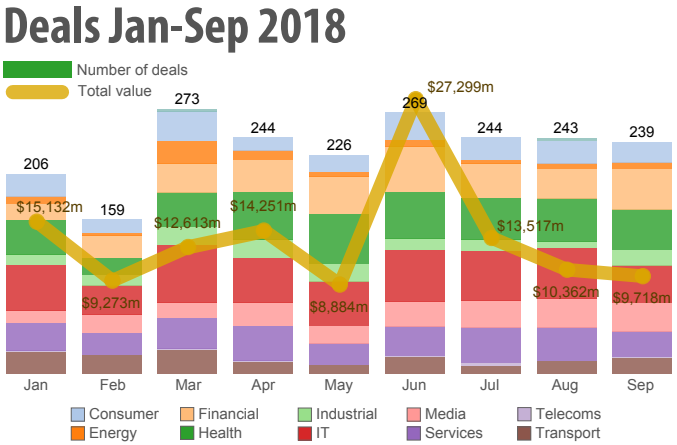
The number of corporate-backed rounds reported in September was 239, up 12% from the 213 funding rounds in the same month last year. Investment value also increased slightly to $9.72bn – up 6% from the $9.12bn in September 2017. September's deal number was similar to those of July and August, with their 244 and 243 rounds respectively.

Most corporate-backed deals were hosted by the US, where there were 117 rounds, China and India were second with 20 rounds and the UK third with 16.

The leading corporate investors by number of deals were diversified conglomerate Alphabet, social media holding company Snap and real estate firm Alexandria. Those involved in the largest deals were telecoms firm SoftBank, along with internet company Tencent and financial services group Goldman Sachs.

GCV Analytics reported 19 corporate-backed funding initiatives in September, including VC funds, new venturing units, incubators, accelerators. This is a decline from August, when there were 24 such initiatives. The estimated capital raised in September's initiatives amounted to $1.6bn, down 28% from an estimated $2.2bn the previous month.

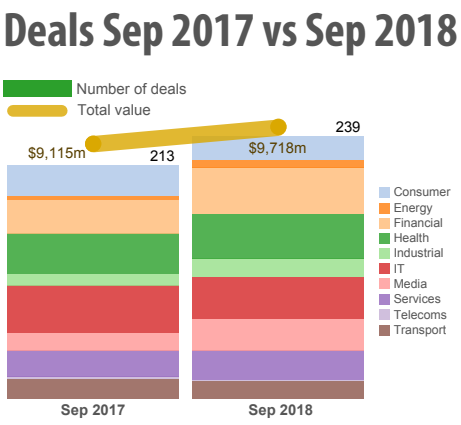




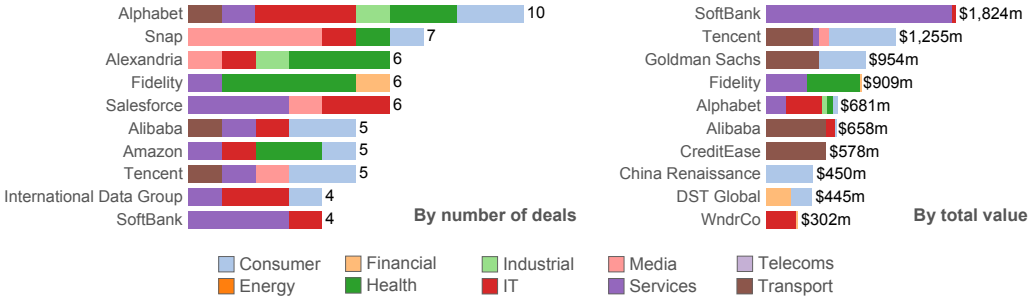
Deals

Emerging businesses from the financial services, health, IT and media sectors raised the largest number of deals during September. The most active corporate venturers came from the financial services, IT, media, health and consumer sectors.

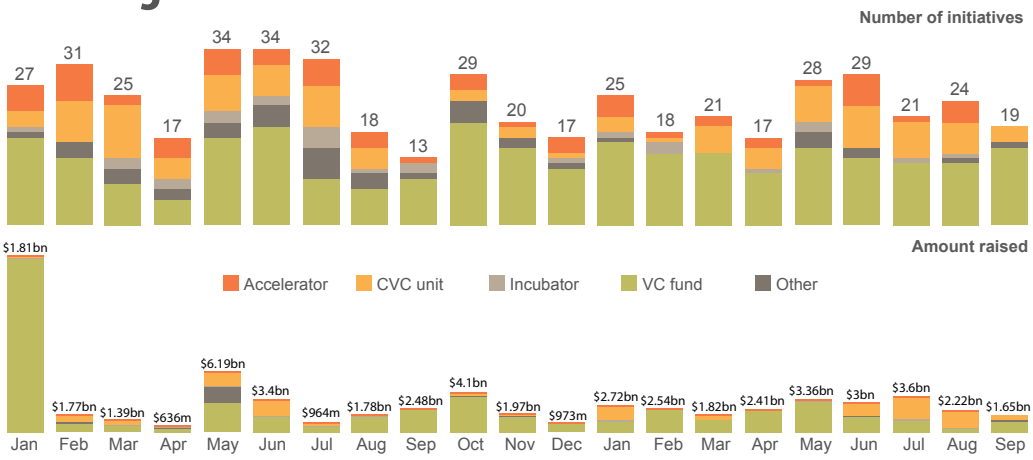
India-based short-term accommodation provider Oyo Rooms raised $1bn from investors including the SoftBank Vision Fund, which joined venture capital firms Sequoia Capital and Lightspeed Venture Partners for an initial $800m tranche. Oyo reportedly also secured commitments for the remaining $200m. The round valued the company at $5bn. Founded in 2013, Oyo partners hotels and rebrands rooms to offer a standardised service, including toiletries and fresh linen, that users can book through its website and app. The company also offers staff training to its partner hotels, and takes a 25% commission on bookings. The company has expanded across India and into Malaysia, Nepal,



Top investors Sep 2018



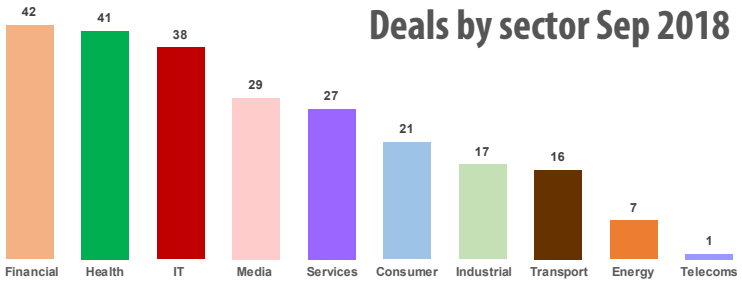
Funding initiatives 2017-18



the UK and China.

China-based used vehicle marketplace Souche collected $578m in a series F round backed by e-commerce group Alibaba and insurance provider Sunshine Insurance Group. Primavera Capital and Morningside Venture Capital co-led the round, which included fintech developer CreditEase and a range of undisclosed investors. Founded in 2012, Souche runs an online car sales platform that connecting medium and large-sized second-hand dealerships across China.

Deals by sector Sep 2018



Deals heatmap Sep 2018

	Financial services	IT	Media	Health	Consumer	Industrial	Services	Transport	Telecoms	Energy
North America	36	21	19	27	11	13	8	8	5	4
Asia	25	14	9	2	12	5	3	4	4	1
Europe	18	7	5	1	5	5	4	3		2
Middle East	1	1	2	3		1	1			
South America	3						1	1		
Africa	1		1						1	
Australia / NZ	2									1

Tencent co-led a $450m round for China-based online grocery retailer MissFresh. The round was co-led by investment firm Goldman Sachs Investment Partners unit. Founded in 2014, MissFresh oversees an online operation selling fresh produce to customers across 20 Chinese cities including Beijing, Shanghai, Guangzhou and Shenzhen. The funding will support the expansion of the company's cold chain logistics and supply chain capabilities in addition to its smart retail technology.

China-based after-sales automotive services provider Tuhu secured $450m in a series E round that included Tencent.

MONTHLY ANALYSIS

Top 10 investments Sep 2018

Company	Location	Sector	Round	Size	Investors
Oyo Rooms	India	Services	–	$1bn	Lightspeed Venture Partners | Sequoia Capital | SoftBank | undisclosed investors
Souche.com	China	Transport	E and beyond	$578m	Alibaba | CreditEase | Morningside | Primavera Capital | Sunshine Insurance Group | undisclosed investors
Miss Fresh	China	Consumer	–	$450m	China Renaissance | Davis Selected Advisers | Glade Brook Capital | Goldman Sachs | Jeneration Capital | Poly Capital | Sofina | Tencent | Tiger Global Management
Tuhu	China	Transport	E and beyond	$450m	Carlyle Group | CCB International | China International Capital Corporation | Goldman Sachs | Grand Flight Investment | Joy Capital | Qiming Venture Capital | Sequoia Capital | Tencent | Welkin Capital Management
Compass	US	Services	E and beyond	$400m	Fidelity | Institutional Venture Partners | Qatar Investment Authority | SoftBank | Wellington Management
OpenDoor	US	Services	E and beyond	$400m	SoftBank
AnchorFree	US	IT	–	$295m	8VC | Accel Partners | Green Bay Ventures | SignalFire | WndrCo
Butterfly Network	China	Health	D	$250m	Bill & Melinda Gates Foundation | Fidelity | private investors | Shanghai Fosun Pharmaceuticals | undisclosed investors
Stripe	US	Financial Services	–	$245m	Andreessen Horowitz | DST Global | General Catalyst | Khosla Ventures | Kleiner Perkins | Sequoia Capital | Thrive Capital | Tiger Global Management
UiPath	US	IT	C	$225m	Accel Partners | Alphabet | Sequoia Capital

CICC Qiyuan and CICC Alpha, both overseen by investment bank China International Capital Corporation, plus Carlyle Group, Sequoia Capital and other investors. Tuhu operates an online platform supplying replacement car parts, tyres and lubricants as well as services such as vehicle maintenance, washing and waxing. It claims to have 13,000 outlets spanning more than 350 Chinese cities.

US-based online real estate transaction platform Compass received $400m in a series F round from a consortium co-led by the SoftBank Vision Fund. The round was co-led by sovereign wealth fund Qatar Investment Authority. The round reportedly valued Compass at $4.4bn post-money. Founded in 2012 as Urban Compass, Compass operates an end-to-end luxury online real estate brokerage that operates across 21 markets in the US. The funding will go to technology development, international expansion and further growth across the US.

Opendoor, a US-based operator of an online real estate marketplace, received $400m from the SoftBank Vision Fund. The investment valued the company at more than $2bn. Founded in 2014, Opendoor runs an online platform where users can buy and sell properties using a smartphone. It is present in 19 US cities but intends to expand that to 50 by the end of 2020. The funding will support the software development.

Media holding company WndrCo led a $295m round for US-based mobile privacy software provider AnchorFree, which included venture capital firms Accel, 8VC, SignalFire and Green Bay Ventures. Founded in 2005, AnchorFree has created mobile app Hotspot Shield, a virtual private network for mobile devices.

US-based handheld ultrasound device maker Butterfly Network raised $250m in a series D round featuring pharmaceutical company Fosun Pharma. The round was led by financial services and investment group Fidelity and included philanthropic organisation Bill and Melinda Gates Foundation, private investor Jamie Dinan and unnamed existing backers. It valued Butterfly at $1.25bn. Butterfly Network has developed handheld 3D ultrasound scanner iQ. It is the size of an electric razor and costs $2,000, considerably less than current alternatives which can retail for up to $20,000.

Stripe, a US-based payment technology provider backed by Alphabet and credit card firms Visa and American Express, has closed a $245m round led by hedge fund manager Tiger Global Management. The round valued Stripe at $20bn. Stripe has developed a mobile-focused payment infrastructure that can be integrated into an online merchant's existing platform. The company charges a small amount for each transaction that uses the technology and has launched its point-of-sale hardware device.

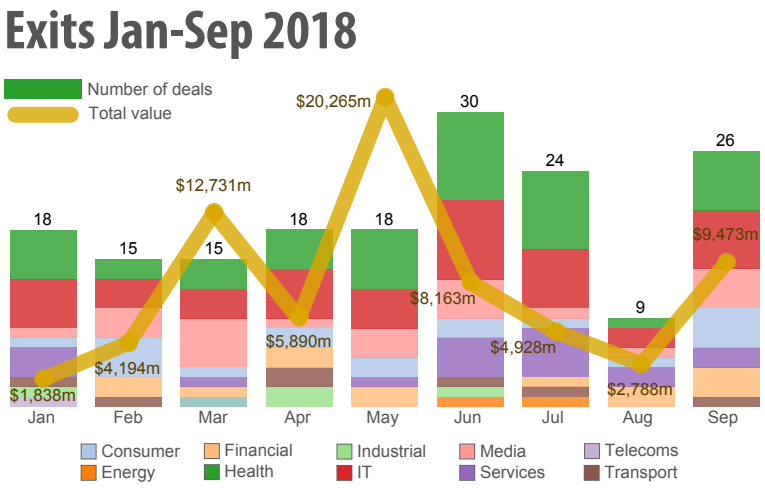
US-based automation software developer UiPath raised $225m in a series C round led by CapitalG, a venturing subsidiary of Alphabet. The round, which valued it at $3bn, also featured financial services firm Sequoia Capital and venture capital firm Accel. Founded in 2005, UiPath has built a robotic process automation platform that uses software bots to automate repetitive processes to help ensure enterprises and government agencies maintain productivity and comply with regulations.

Exits

In September, GCV Analytics tracked 26 exits with corporate venturers participating as either acquirers or exiting investors. The transactions included 13 acquisitions, 11 initial public offerings and one merger. The number of exits rose significantly compared with August, which, as a slow summer month, registered just nine exits. Total estimated exited capital amounted to $9.47bn, up fourfold from the $2.29bn estimated during the previous month.

MONTHLY ANALYSIS

China-based local services platform Meituan-Dianping raised $4.22bn in an initial public offering that included a $400m investment by Tencent. Meituan Dianping issued 480 million primary shares on the Hong Kong Stock Exchange at HK$69 ($8.79) each, near the top of the IPO's HK$60 to HK$72 range. The offering reportedly valued the company at about $52bn. Established through the 2015 merger of group buying platform Meituan and restaurant listings service Dianping, Meituan-Dianping now operates an online portal that links to a range of services including food delivery, travel booking and event ticketing.



Biopharmaceutical company Alexion Pharmaceuticals agreed to acquire Syntimmune, a US-based autoimmune disease therapy developer backed by drug producer Baxalta, for up to $1.2bn. Alexion will pay $400m in cash upfront and up to $800m more if Syntimmune hits certain milestones. Founded in 2013, Syntimmune is developing therapies for autoimmune diseases.

Nio, a China-based smart electric car developer with Tencent, internet company Baidu, consumer electronics producer Lenovo and e-commerce firm JD.com as investors, raised approximately $1bn when it floated on the New York Stock Exchange. The IPO consisted of 160 million American depositary shares at $6.26 each, near the bottom of the $6.25 to $8.25 range set earlier. It valued Nio at $6.4bn. Founded in 2014 as NextEV before rebranding, Nio is working on plug-in electric cars fitted with features including artificial intelligence and autonomous driving systems. Nio's first model, the EP9 supercar, was released in 2016, and it launched its first commercial model, ES8, last December.

Farfetch, a UK-based fashion e-commerce platform backed by media group Advance Publications and JD.com, went public in an IPO that raised approximately $885m. The company issued just over 33.6 million shares on the New York Stock Exchange while its shareholders sold an additional 10.6 million. The shares were $20 each, above the IPO's $17 to $19 range, giving it a market cap of about $5.8bn. Founded in 2008, Farfetch operates an online marketplace for luxury fashion items, selling the wares of almost 1,000 producers to 2.3 million customers worldwide.

Business communications technology supplier Vonage Holdings agreed to acquire US-based customer service technology provider NewVoiceMedia in a $350m deal, allowing enterprise software producer Salesforce to exit. NewVoiceMedia has developed a cloud software platform that integrates with an organisation's existing customer relationship management software, bringing together all communications channels to help staff contact customers more effectively.

Germany-based industrial internet-of-things technology provider Relayr was acquired by Hartford Steam Boiler, an equipment breakdown insurance subsidiary of reinsurance firm Munich Re, for $300m. Founded in 2013, Relayr has created a middleware software platform that relies on artificial intelligence to offer data insights into new and legacy hardware. The technology makes it possible, for example, to predict when a machine is likely to fail.

Pharmaceutical firm Boehringer Ingelheim acquired one of its portfolio companies, Austria-based immuno-oncology therapy developer ViraTherapeutics for €210m ($245m). ViraTherapeutics is developing oncological drugs based on viruses that have been engineered to destroy cancer cells while leaving surrounding tissue unharmed. It was spun out of Medical University of Innsbruck in 2013. The company's lead asset is a modified virus that enhances the immune response and impacts tumours directly.

US-based event ticketing and technology platform developer Eventbrite secured $230m when it floated on the New York Stock Exchange, chalking up an exit for payment technology producer Square. The IPO consisted of 10 million shares at $23 each, giving it a $1.76bn valuation. The company had initially set a $19 to $21 range before upgrading it to $21 to $23. Eventbrite has created an online ticketing platform through which some 203 million tickets were sold over the course of last year. The company made a $15.6m net loss in the first half of 2018 from $142m in revenue.

SVMK, the US-based owner of online customer research platform SurveyMonkey, floated in a $180m IPO that scored exits for Alphabet and Salesforce. The company increased the number of shares in the offering from 13.5 million to 15 million at $12 each, above the $9 to $11 range it had set earlier. SurveyMonkey has built a cloud-based software platform with 16 million active users that helps clients design, create and distribute online surveys in order to conduct research and analyse the resulting data.

Tapingo, a US-based, student-focused food ordering platform backed by mobile chipmaker Qualcomm, agreed to an

MONTHLY ANALYSIS

Top 10 exits Sep 2018

Company	Location	Sector	Type	Acquirer	Size	Exiting investors
Meituan-Dianping	China	Consumer	IPO	–	$4.2bn	Canada Pension Plan Investment Board | Capital Today | China Structural Reform Fund | China-UAE Investment Cooperation Fund | Coatue | Darsana Capital Partners | DST Global | GIC | Hillhouse Capital Management | International Data Group | Lansdowne Partners | Oppenheimer Funds | Priceline | Sequoia Capital | Tencent | Tiger Global Management | TrustBridge Partners
Syntimmune	US	Health	Acquisition	Alexion Pharmaceuticals	$1200m	Apple Tree Partners | Baxalta | Partners Innovation Fund
Nio	China	Transport	IPO	–	$1bn	Baidu | Baillie Gifford | Citic | GIC | Hillhouse Capital Management | Hopu Investment Management | International Data Group | JD.com | Joy Capital | Lenovo | Pine Capital | Sequoia Capital | Shunwei Capital | Temasek | Tencent | TPG
Farfetch	US	Consumer	IPO	–	$885m	Advance Publications | DST Global | E.Ventures | Eurazeo | Index Ventures | International Data Group | JD.com | New Leaf Venture Partners Advent Venture Partners | Temasek | Vitruvian Partners | private investors
NewVoiceMedia	UK	IT	Acquisition	Vonage Holdings	$350m	Bessemer | BGF Ventures | Eden Ventures | Highland Capital Partners | MMC Ventures | Notion Capital | Salesforce | Technology Crossover Ventures
Relayr	Germany	IT	Acquisition	Hartford Steam Boiler	$300m	B37 Ventures | Deutsche Telekom | Kleiner Perkins | Munich Re/HSB Ventures | Munich Venture Partners | Purple Arch Ventures | undisclosed investors
ViraTherapeutics	US	Health	Acquisition	Boehringer Ingelheim	$245m	Austria Wirtschaftsservice | Austrian Research Promotion Agency | Boehringer Ingelheim | European Molecular Biology Laboratory | Startup.Tirol
Eventbrite	US	Media	IPO	–	$230m	137 Ventures | DAG Ventures | Global Founders Capital | Sequoia Capital | T Rowe Price | Tenaya Capital | Tiger Global Management
SurveyMonkey	US	Media	IPO	–	$180m	Alphabet | Salesforce
Tapingo	Israel	Consumer	Acquisition	Grubhub	$150m	Carmel Ventures | DCM | Khosla Ventures | Kinzon Capital | Qualcomm

acquisition by food delivery service Grubhub for about $150m. Grubhub will integrate Tapingo's service into its own offering. Tapingo has developed an app that allows university students to pre-order and pick up food from local outlets. The app integrates with meal plans and point-of-sale systems on campus, and is currently available at more than 150 institutions across the US. ◆

Note: Monthly data can fluctuate as additional data are reported after GCV goes to press

QUARTERLY ANALYSIS

The following is a snapshot of the data we have collected on investment activity over the past three months. To verify reported deals, we contact about 300 corporate investors each quarter – these comprise roughly 18% of the global CVCs we cover, but account for most of the deals that are made public.

Strong third quarter for corporate venturing

Kaloyan Andonov, reporter, GCV Analytics

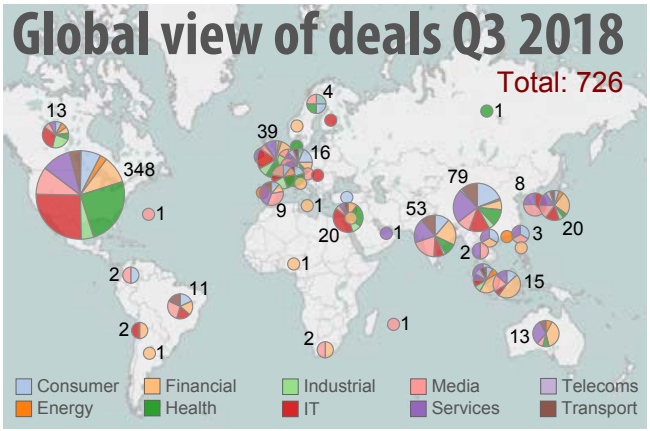
In the third quarter, GCV Analytics tracked 726 funding rounds involving corporate venturers, a 17% increase over the 620 rounds recorded in the same quarter of last year. However, the estimated total investment stood at $33.6bn, down 6% from the $35.61bn recorded in the same period last year.

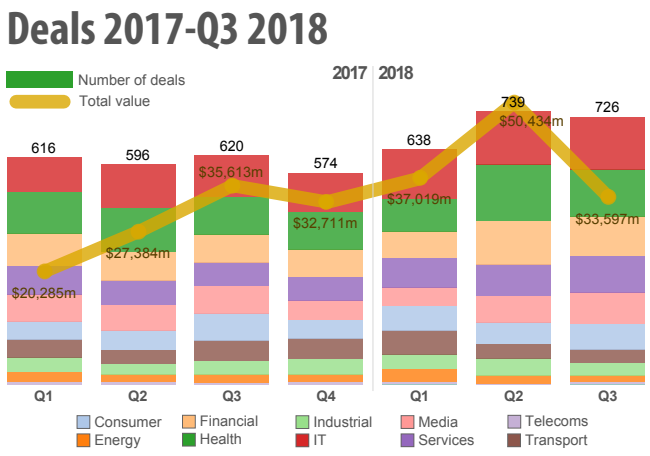
The US hosted the largest number of funding rounds, nearly half at 348. China came second with 79 deals, India third with 53, and the UK fourth with 39. There was a slight decrease in the number of deals compared with the second quarter of this year, down from 739. Estimated total investment went down considerably from $50.43bn, or 33%.

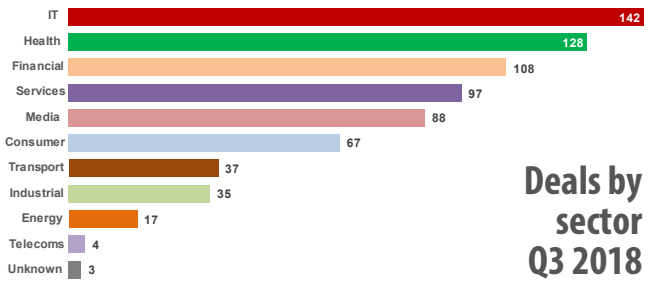
Emerging enterprises from the IT, health, financial and services sectors proved the most attractive for corporate venturers. The top funding rounds by size, however, were raised mostly by companies from a variety of sectors.

The most active corporate investors came from the financial services, IT, media, health and consumer sectors.

The leading investors by number of deals were diversified internet conglomerate Alphabet, cloud-based enterprise software provider Salesforce and financial services firm Goldman Sachs. The corporate venturers involved in the largest deals by size were telecoms and internet group SoftBank, e-commerce firm Alibaba, along with Goldman Sachs and Alphabet.







Deals

Most funding from the biggest rounds reported in the third quarter went to emerging enterprises in the consumer, transport, media and services sectors. Five of the top 10 rounds were above $1bn.

JD Finance, a financial services provider spun off from e-commerce firm JD.com, reportedly secured "at least" RMB13bn ($1.95bn) at an $18bn valuation. The cash came from BOCGI and CICC Capital, respective subsidiaries of financial services firms Bank of China and China International Capital Corp, along with private equity group Citic Capital and brokerage firm China Securities. Formed as an internal division of JD.com in 2013, JD Finance provides a range of financial services including

consumer loans, supply chain financing, payment services, crowdfunding and microfinance, insurance, asset management and securities.

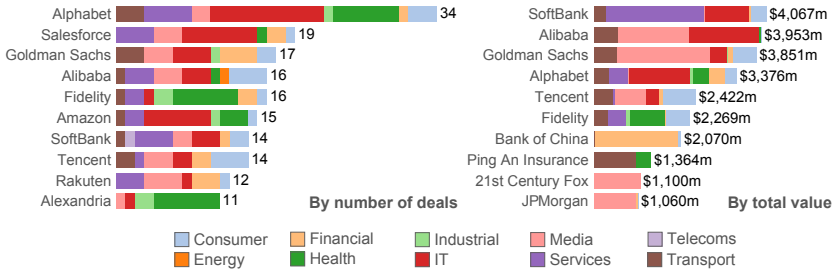
SoftBank committed $1bn to China-based image recognition technology provider SenseTime. The terms of the deal, made through the SoftBank Vision Fund, and the valuation of the company were not revealed. Founded in 2014, SenseTime develops artificial intelligence technology capable of recognising faces, vehicles and objects on a large scale. The company is increasingly moving into augmented reality and autonomous driving but its technology is used most in mass surveillance systems.

India-based accommodation provider Oyo Rooms secured $1bn from investors including the SoftBank Vision Fund in its initial $800m tranche. Oyo reportedly also secured commitments for the remaining $200m. The transaction valued Oyo at $5bn. Founded in 2013, Oyo partners hotels and rebrands rooms to offer a standardised service

Deals heatmap Q3 2018

	Financial services	IT	Media	Health	Consumer	Services	Industrial	Telecoms	Transport	Energy
North America	104	84	58	72	35	26	31	22	16	15
Asia	74	42	37	8	40	24	12	17	12	2
Europe	38	10	13	13	17	6	12	2	4	6
Middle East	5	4	4	4	2	3	5			
South America	6	1	2		1	1		5	1	
Australia / NZ	7	2	1	1		2	1		1	1
Africa	2	1	1					1		
Eastern Europe		1								

Top investors Q3 2018



Top 15 investments Q3 2018

Company	Location	Sector	Round	Size	Investors
JD Finance	China	Financial services	–	$1.95bn	Bank of China | China International Capital Corporation | China Securities | Citic
SenseTime	China	IT	–	$1bn	SoftBank
Oyo Rooms	India	Services	–	$1bn	Lightspeed Venture Partners | Sequoia Capital | SoftBank | undisclosed investors
Grab	Singapore	Transport	E and beyond	$1bn	All-Stars Investment | China Cinda Asset Management | Lightspeed Venture Partners | Macquarie Capital | Mirae Asset Ventures | Oppenheimer Funds | Ping An Insurance | Vulcan | undisclosed investors
NewTV	US	Media	A	$1bn	21st Century Fox | Alibaba | Entertainment One | Goldman Sachs | ITV | JPMorgan | Liberty Global | Lionsgate | Madrone Capital Partners | Metro-Goldwyn-Mayer Studios | NBC Universal | Sony | Viacom | Walt Disney | Warner Media
Magic Leap	US	IT	D	$963m	Alibaba | Alphabet | AT&T | Axel Springer | Grupo Globo | Saudi Arabia's Public Investment Fund
Suning Sports	China	Media	A	$600m	ABC International | Alibaba | CCB International | China Minsheng Bank | Evergrande Group | Goldman Sachs | Jiangsu Province | SenseTime | Sports Industrial Fund of Zhejiang Province
Megvii Technology	China	IT	D	$600m	Alibaba | Boyu Capital
Ximalaya	China	Media	E and beyond	$580m	General Atlantic | Goldman Sachs | Tencent
Souche.com	China	Transport	E and beyond	$578m	Alibaba | CreditEase | Morningside | Primavera Capital | Sunshine Insurance Group | undisclosed investors
Peloton Cycle	US	Consumer	E and beyond	$550m	Balyasny Asset Management | Comcast | Fidelity | Kleiner Perkins | TCV | True Ventures | Wellington Management
Dada-JD Daojia	China	Consumer	–	$500m	JD.com | Walmart
Letgo	US	Consumer	–	$500m	Naspers
WeWork China	China	Services	B	$500m	Hony Capital | SoftBank | Temasek | TrustBridge Partners
Miss Fresh	China	Consumer	–	$450m	China Renaissance | Davis Selected Advisers | Glade Brook Capital | Goldman Sachs | Jeneration Capital | Poly Capital | Sofina | Tencent | Tiger Global Management

including toiletries and fresh linen that users can book through its website and app. The company is present in India, Malaysia, Nepal, the UK and China.

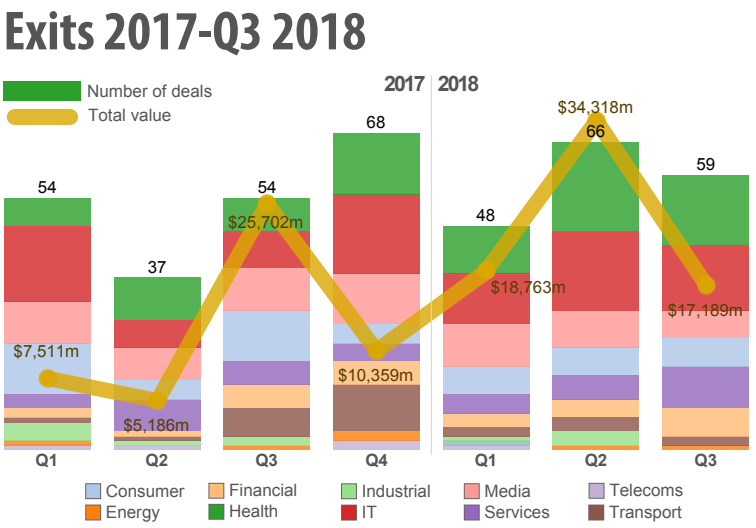
Singapore-based ride-hailing platform Grab doubled to $2bn a funding round featuring automotive manufacturer Toyota, insurance group Ping An and internet company Naver. Toyota had already provided the first $1bn earlier this year, and the second tranche featured Ping An Capital and Mirae Asset–Naver Asia Growth Fund, a joint venture set up by Naver and investment bank Mirae Asset Daewoo. The round reportedly valued Grab at $11bn post-money. Founded in 2012 as GrabTaxi, Grab operates an on-demand ride-hailing service available across Southeast Asia.

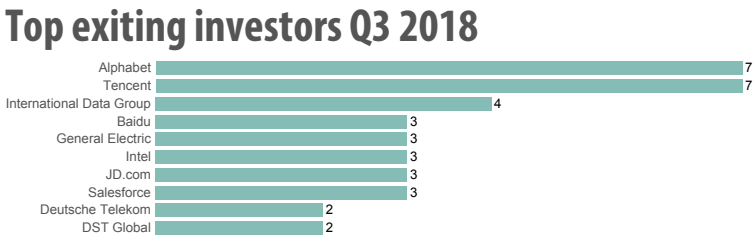
US-based short-form video production company NewTV closed an initial $1bn funding round, raising the cash from a consortium including a range of corporate investors. Media and entertainment groups 21st Century Fox, Walt Disney, Entertainment One, ITV, Lionsgate, Metro Goldwyn Mayer, NBCUniversal, Sony Pictures Entertainment, Viacom and Warner Media were among the investors. Alibaba, mass media group Liberty Global and investment banking firms Goldman Sachs and JPMorgan Chase also participated. NewTV is developing an online platform featuring drama, comedy, documentaries and reality shows cut into 10-minute episodes, made with budgets comparable to high-profile cable channels or streaming services like HBO or Netflix.

Exits

GCV Analytics tracked 59 corporate-related exits during the third quarter of 2018, including 32 acquisitions, 22 initial public offerings, four mergers and one stake sale. Most took place in the US, China and Europe.

Top exiting corporates included technology and internet company Alphabet, internet company Tencent and media and research company International Data Group, which reported at least four exits each. The total estimated level of exited capital was $17.19bn. The top five recorded exits were above $1bn.





China-based services platform Meituan-Dianping closed a $4.22bn IPO that featured a $400m commitment by Tencent. Meituan-Dianping issued 480 million primary shares on the Hong Kong Stock Exchange at HK$69 ($8.79) each, at the upper end of the HK$60 to HK$72 range it had set earlier. The transaction reportedly valued the company at about $52bn. Formed by the 2015 merger of group buying platform Meituan and restaurant listings service Dianping, Meituan-Dianping runs an online portal offering a range of services such as travel booking, event ticketing and food delivery.

Networking equipment manufacturer Cisco Systems agreed to acquire Duo Security, a US-based authentication software provider backed by human resources software producer Workday and Alphabet. Cisco will pay $2.35bn in cash and assumed equity awards for Duo's outstanding shares, warrants and equity incentives on a fully diluted basis. Founded in 2009, Duo Security operates a cloud-based user verification platform that uses two-factor authentication – a unique time-limited code and a password.

Pinduoduo, a China-based group buying platform backed by Tencent, raised about $1.63bn when it floated in the US. The company priced its IPO at the top of its $16 to $19 range, issuing 85.6 million American depositary shares on the Nasdaq Global Select Market. The IPO reportedly valued Pinduoduo at $23.8bn including all outstanding share options. The IPO was oversubscribed 20-fold and buyers reporedly included Fidelity Investments and Abu Dhabi-owned sovereign wealth funds. Pinduoduo's group buying platform enables multiple buyers to form groups, either on the platform or through social media networks, to buy items in bulk at a discount.

Pharmaceutical company Alexion Pharmaceuticals acquired US-based autoimmune disease therapy developer Syntim-

QUARTERLY ANALYSIS

Top 15 exits Q3 2018

Company	Location	Sector	Type	Acquirer	Size	Exiting investors
Meituan-Dianping	China	Consumer	IPO	–	$4.2bn	Canada Pension Plan Investment Board | Capital Today | China Structural Reform Fund | China-UAE Investment Cooperation Fund | Coatue | Darsana Capital Partners | DST Global | GIC | Hillhouse Capital Management | International Data Group | Lansdowne Partners | Oppenheimer Funds | Priceline | Sequoia Capital | Tencent | Tiger Global Management | TrustBridge Partners
Duo Security	US	IT	Acq	Cisco Systems	$2.35bn	Alphabet | Benchmark | Geodesic Capital | Index Ventures | Lead Edge Capital | Meritech Capital | Radar Partners | Redpoint Ventures | Resonant | True Ventures | Workday
Pinduoduo	China	Consumer	IPO	–	$1.63bn	Cathay Capital | Gaorong Capital | International Data Group | Lightspeed Venture Partners | Sequoia Capital | Sky Royal Trading | Sun Vantage Investment | Tencent
Syntimmune	US	Health	Acq	Alexion Pharmaceuticals	$1.2bn	Apple Tree Partners | Baxalta | Partners Innovation Fund
Nio	China	Transport	IPO	–	$1bn	Baidu | Baillie Gifford | Citic | GIC | Hillhouse Capital Management | Hopu Investment Management | International Data Group | JD.com | Joy Capital | Lenovo | Pine Capital | Sequoia Capital | Shunwei Capital | Temasek | Tencent | TPG
Farfetch	US	Consumer	IPO	–	$885m	Advance Publications | DST Global | E.Ventures | Eurazeo | Index Ventures | International Data Group | JD.com | New Leaf Venture Partners Advent Venture Partners | private investors | Temasek | Vitruvian Partners
Treasure Data	US	IT	Acq	Arm	$600m	AME Cloud Ventures | Dentsu | Heavybit | Innovation Network Corporation of Japan | IT-Farm Corporation | private investors | SBI Group | Scale Venture Partners | Sierra Ventures
Visterra	US	Health	Acq	Otsuka Pharmaceutical	$430m	Alexandria | Allegheny Financial Group | Bill & Melinda Gates Foundation | CTI Life Sciences Fund | Cycad Group | Flagship Ventures | Merck & Co | Omega Funds | Polaris Venture Partners | Serum Institute of India | Vertex Ventures
Avnera	US	IT	Acq	Skyworks Solutions	$405m	Altien Ventures | Bessemer | Best Buy | DAG Ventures | Icon Ventures | Intel | Panasonic | Polycom | Redpoint Ventures
Ascletis	China	Health	IPO	–	$400m	C-Bridge Capital | Focus Media | Goldman Sachs | Hangzhou Binjiang Investment | Pavilion Capital | QianHai Equity Investment FOF | Tasly Pharmaceutical | WTT Investment
LevelUp	US	Financial services	Acq	Grubhub	$390m	Alphabet | Balderton Capital | CentroCredit Bank | Continental Advisors | Deutsche Telekom | Highland Capital Partners | JPMorgan | Transmedia Capital | US Boston Capital
NewVoiceMedia	UK	IT	Acq	Vonage Holdings	$350m	Bessemer | BGF Ventures | Eden Ventures | Highland Capital Partners | MMC Ventures | Notion Capital | Salesforce | Technology Crossover Ventures
Relayr	Germany	IT	Acq	Hartford Steam Boiler	$300m	B37 Ventures | Deutsche Telekom | Kleiner Perkins | Munich Re/HSB Ventures | Munich Venture Partners | Purple Arch Ventures | undisclosed investors
Bloom Energy	US	Energy	IPO	–	$270m	Advanced Equities | Alberta Investment Management Corporation | Apex Venture Partners | Credit Suisse | DAG Ventures | Eon | Goldman Sachs | GSV Capital | Kleiner Perkins | Madrone Capital Partners | Mobius Venture Capital | Morgan Stanley | New Enterprise Associates | New Zealand Superannuation Fund | SunBridge | undisclosed investors
ViraTherapeutics	US	Health	Acq	Boehringer Ingelheim	$245m	Austria Wirtschaftsservice | Austrian Research Promotion Agency | Boehringer Ingelheim | European Molecular Biology Laboratory | Startup.Tirol

mune, whose backers include drug producer Baxalta, for up $1.2bn. Alexion agreed to pay $400m in cash and up to $800m reliant on milestones. Founded in 2013, Syntimmune develops therapies for autoimmune diseases.

Funding initiatives

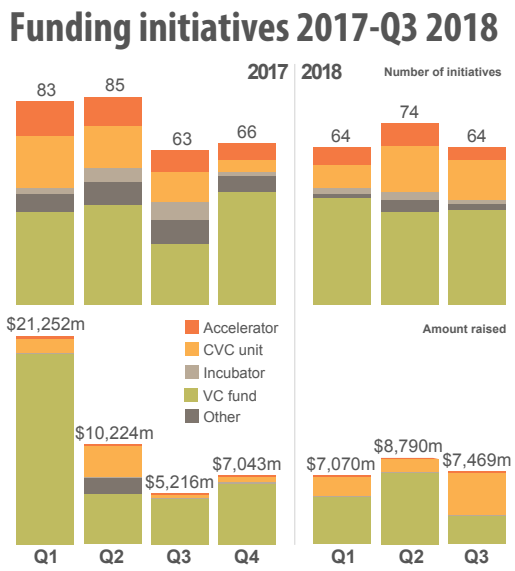
Corporate venturers supported a total of 64 fundraising initiatives in the third quarter of 2018, comparable to the 63 initiatives reported during the same period of 2017. The estimated total capital raised, $7.47bn, however, was 43% higher than last year's third-quarter figure of $5.22bn.

The initiatives in question included 39 announced, open and closed VC funds with corporate limited partners (LPs), 16 new corporate venturing units, five corporate-backed accelerators and two incubators among others.

China-based oil, gas and chemicals supplier Sinopec formed investment firm Sinopec Capital with RMB10bn. Sinopec Capital invests in emerging areas such as new energy, advanced materials, artificial intelligence, smart manufacturing and supply chain technologies. Although Sinopec has not stated directly that the vehicle will invest in startups, its activities will cover equity investments and management as well as project investments and asset management. The fund receives 49% of its capital from oil and gas refiner Sinopec Corp and the remaining 51% from parent company Sinopec Group.

JD.com joined a group of partners to raise up to RMB40bn for venture capital fund Starquest Capital, also known as Xingjie Capital. It will be run by private equity firm China Reform Holdings, which already oversees the $30bn Chinese state-owned Capital Venture Investment Fund. VC firm Sequoia Capital China is also an LP in the fund. The renminbi-denominated fund will target late-stage investments in technology companies and has so far secured 25% of its target.

Telstra Ventures, the corporate venturing arm of Australia-based telecoms company Telstra, and private equity firm HarbourVest, launched a A$675m ($500m) fund of which Telstra is expected to hold 62.5% and HarbourVest 32.5%. Founded in 2011, Telstra Ventures has offices in Australia, the US and China, targeting deals in sectors such as mobile internet, media, cloud computing, machine learning and cybersecurity. The fund will take over management of Telstra Ventures' portfolio .



SoftBank established a $300m corporate venturing fund in China in partnership with a subsidiary of private equity group TPG. SoftBank will participate in the venture through SoftBank Ventures Korea, the South Korea-based internationally-focused fund it set up in 2000, while TPG is represented by its TPG Growth division. The fund, China Ventures Fund I, will back early-stage companies focusing on areas such as artificial intelligence, deep tech, digital media and online content. It will be managed by SoftBank Ventures Korea CEO JP Lee and Jason Ding, a managing director of TPG Growth. SoftBank Ventures Korea's investors include internet company Naver, mobile network operator LG Uplus, games producer Nexon, insurance provider KB and financial services firms KDB and NongHyup.

Longzhu Capital, the corporate venturing arm of China-based local services portal Meituan-Dianping, closed its first fund at RMB2bn. The capital came from Meituan-Dianping, Tencent and agribusiness New Hope Group as well as financial services firms China Merchants Capital, Noah Holdings, Guochuang Kaiyuan Fund and Xiangjiang Shengshi Fund. Longzhu Capital focuses on sectors such as catering, new retail and local services, and aims to leverage Meituan-Dianping's expertise and resources.

Switzerland-based financial services firm Credit Suisse's financial technology and data investment arm, Next Investors, closed its latest fund, Next Investors II, at $261m. It raised capital from unnamed financial services firms, funds of funds, family offices and ultra-high-net-worth individuals in North and South America, Europe and the Asia-Pacific region. The fund will invest in growth-stage technology and financial services technology developers, focusing on companies where its management team can offer expertise. A regulatory filing indicates that Next Investors had originally targeted a $300m close.

US-based healthcare provider Cigna launched corporate venturing vehicle Cigna Ventures with $250m. Cigna provides both healthcare and health insurance but formed Cigna Ventures to access innovative technology that could improve the effectiveness and efficiency of its services. The fund will target companies focusing on health insights and analytics, digital health and retail technology as well as healthcare delivery and management.

China-based educational services provider New Oriental Education and Technology formed a RMB1.5bn investment fund to target education-focused companies. Educational services firm Sunlands Education and recruitment platform 51Job also backed the fund, as did financial services providers Industrial and Commercial Bank of China, Citic Trust, Noah Group and Gaodun Finance, and municipal government-owned fund manager Zhangjiagang Industrial Capital Centre.

QUARTERLY ANALYSIS

Top 10 funding initiatives Q3 2018

Fund	Type	Size	Location	Sector	Investors
Sinopec Capital	CVC unit	$1.48bn	China	Energy, IT, industrial, services	Sinopec Engineering Group
Starquest Capital	CVC unit	$1.453bn	China	Unspecified	China Reform Holding | Sequoia Capital | JD.com | Capital Venture Investment Fund
Telstra-HarbourVest partnership	CVC unit	$500m	Australia	Unspecified	HarbourVest | Telstra
China Ventures Fund I	VC fund	$300m	China	IT, media	TPG | NongHyup Financial Group | KDB Capital | SoftBank | Naver | Nexon | LG | KB Insurance
Longzhu Capital Fund I	VC fund	$300m	China	Consumer	China Merchants Capital Investment | Noah Holdings | Guochuang Kaiyuan | Xiangjiang Shengshi | Meituan-Dianping | Tencent | New Hope Group
Next Investors II	VC fund	$261m	Switzerland	Financial services	Credit Suisse | Undisclosed strategic investors | family offices | private investors
Cigna Ventures	CVC unit	$250m	US	Health	Cigna
Unnamed New Oriental fund	VC fund	$220m	China	Unspecified	Noah Group | Gaodun Finance | New Oriental Education and Technology | Sunlands Education | 51job | ICBC | Citic
AP Ventures	CVC unit	$200m	UK	Energy	Anglo American | Public Investment Corporation
Latitude Venture Partners I	CVC unit	$200m	Indonesia	Industrial, financial, IT, health	Sinar Mas

The vehicle will focus on early-stage startups based in China and plans to make up to 30 investments of between $3m and $15m. The firm also intends to launch a separate dollar-denominated fund of $220m.

UK-based venture capital fund AP Ventures was launched with $200m, half of which came from Anglo American Platinum, the platinum-focused subsidiary of mining company Anglo American. The remaining $100m came from AP Ventures' other cornerstone investor, South African government-owned asset management firm Public Investment Corporation. AP Ventures will invest in companies developing technologies or products that make use of platinum group metals, including systems that can help integrate renewable energy or mitigate the effects of population growth. The fund will be based in London but plans to open a South African office as it looks to secure external investors. Its team was previously part of PGM Investment Program, a strategic investment initiative created by Anglo American Platinum in 2014.

Latitude Venture Partners, an Indonesia-based venture capital and business development vehicle affiliated with Indonesian conglomerate Sinar Mas, secured $200m. Latitude targets investments in growth-stage companies that can bring value to Indonesia. Sectors of interest include financial, industrial, healthcare and artificial intelligence technology. Sinar Mas already operates corporate venturing unit Sinar Mas Digital Ventures and is a partner in EV Growth along with internet company Yahoo Japan and VC firm East Ventures. ◆