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Global Corporate Venturing

The big opportunities in 2018

INSIDE

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Global Corporate Venturing

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EDITORIAL

Trends that reshape venturing

James Mawson, editor-in-chief

English mathematician and philosopher Sir Alfred North Whitehead has observed that "civilisation advances by extending the number of important operations which we can perform without thinking about them". And as the new year dawns for those on the Gregorian calendar, it is worth looking at the trends shaping the industry.

While there are plenty of technology changes under way, the biggest shifts are the ones to business models, which then usually finds the technology to fit its paradigm rather than the other way round. First, using the superforecaster theory to improve predictions, we can check back on the three main issues identified in this editorial last year after I noted the end of the golden age for corporate venturing in December 2016's editorial:

Sadly "a panglossian degree of optimism" in the macro environment – Trump's billionaire-only policies, Russian pressure on Europe and China's crackdown under President Xi – only continued last year with tax reform in the US benefiting the already-haves, Russian president Vladimir Putin gaining confidence in his assault on the European project and neighbours, and Time headlining the 26th annual congress as "Xi Jinping Is China's most powerful leader since Mao Zedong".

The second big theme was things "shaping up to be the first mass market age in venture capital". With the further emancipation of options for entrepreneurs through initial coin offerings, which exploded last summer, there is increased attention on what they want rather than what investors want. Entrepreneurs' needs remain constant – cash, customers, product development, hiring and exit routes. Achieving these remains the challenge and corporate venturers have stepped up their identification of competitive advantages in this space.

This leads to the third issue: "From a cottage industry of VCs following 'pattern recognition' to select former colleagues, fellow university alumni and sons of friends, the newer breed of venture investor has emerged with the brand, marketing and support-beyond-money that entrepreneurs want, offered by units that can hire experienced and mixed teams."

There has been admirable discussion on diversity in investment teams and portfolio companies

There has been admirable discussion on diversity in investment teams and portfolio companies. Intel Capital has reached 20% in female-led portfolio companies while it is now hard to find all-male corporate venturing units outside the legacy lifestyle groups modelled on their college peers at independent venture capital firms. Glance at those listed in Global Corporate Venturing's Rising Stars 2018 – out at the end of the month at the Global Corporate Venturing & Innovation Summit in California – primarily nominated by industry leaders, and it is clear where the direction of travel in this area is heading.

So, what could be new issues to be aware of in 2018? Cracks widening in the global economy is one. This will create opportunities for those with cash to pick up assets. Looking at Yale endowment's holdings, it is salient that David Swensen is now holding a higher proportion in zero-beta – uncorrelated to markets – assets than he did before the global financial crisis started from 2007.

Finding and tying up sources of longer-term capital that can be called down is probably the biggest strategic factor this year. It is no surprise the smarter groups, such as Tencent and Intel, have been tapping public markets or trade sales for portfolio companies where possible.

The incredible valuations and funding for successful entrepreneurial companies has meant the venture industry is finally joining its more professional siblings in private equity. For context, 25 years ago, in 1992, after the savings and loans and Drexel Burnham crises crushed leveraged buyouts, private equity firms raised $20.8bn. In 2016, after an overhaul of practices, talent and methods, private equity firms raised $347bn and had $2.5 trillion in assets under management, according to data provider Preqin.

Corporate venturing's rise this decade with its first near-$100bn fund raised by SoftBank last year and involvement in venture deals worth more than $100bn indicates what can be achieved.

The third area for strategic corporate venturing leaders is the collaboration potential between universities and governments. A large part of money for the SoftBank Vision Fund came from Middle Eastern sovereign wealth funds, while university leaders, such as Christine Gulbranson at University of California, have identified ways to tap corporate partnerships more strategically. SoftBank's success in dealmaking – its portfolio company Alibaba passed $500bn in market capitalisation for the first time last year – and then raising capital has shone a light on what can be done in structures.

And this is the final change to be seen in greater depth and light this year. Technology is finally changing corporate venturing itself. Artificial intelligence (AI), when the inputs are unbiased, is helping identify a longer tail of opportunities, and the smarter groups, such as Didi Chuxing, SoftBank, Merck and others, are working out how to combine these into bigger assets to capture the next S-curves of disruptive possibilities. Unsurprisingly, therefore, AI seemed to be the top pick by those responding to our annual survey in partnership with Insead and Stanford business schools. For the full selection of predictions, selections as well as the annual data, see the World of Corporate Venturing 2018 supplement when it is out at the Global Corporate Venturing & Innovation Summit at the end of the month, but a selection of *leaders' quotes is included in this issue*. ◆

NEWS

Toyota hires Ford for corporate venturing


Jill Ford

Jill Ford, head of innovation and entrepreneurship for the US city of Detroit, has joined Toyota AI Ventures, a Silicon Valley-based corporate venturing subsidiary of Japan-based carmaker Toyota, as principal.

Ford previously spent three years as special adviser to the mayor of Detroit, identifying, designing and leading initiatives to support startups and small businesses in the city. Before that she was an angel investor based in San Francisco and a venture partner for a social impact investing fund.

Ford has joined Toyota to source new investment opportunities and work with portfolio companies for the $100m fund the firm set up in July.

Formed as part of Toyota Research Institute (TRI), Toyota AI Ventures focuses on artificial intelligence (AI), robotics, autonomous mobility, data and cloud technologies that share TRI's mission to improve the quality of human life through AI.

Fang cuts away from Baidu


Yimin Fang

Yimin (Peter) Fang, senior director of corporate investment and mergers and acquisitions at China-based internet company Baidu, has rejoined former colleague Kai-Fu Lee at venture capital firm Sinovation Ventures.

Fang, ranked eighth on the Global Corporate Venturing Powerlist 2016, worked under US-based internet technology provider Google's first China president, Kai-Fu Lee, as an investment director at Innovation Works, a China-based investment firm since rebranded as Sinovation, from 2011 to 2014.

Fang joined Baidu in 2014 after a few months at financial services group Fidelity's Asian corporate venturing unit, Fidelity Growth Partners Asia. At Baidu he covered strategic investments and mergers and acquisitions in areas such as adtech, big data, mapping, fintech and deep learning.

Kevin Jacques gets Visa position

Kevin Jacques, formerly head of corporate strategy and development at financial software provider Intuit, has become global head of Visa Ventures, the corporate venturing arm of US-based payment services firm Visa.

Jacques said he had completed 30 acquisitions, six divestitures, nine fund investments and numerous corporate venture investments over the past five years at Intuit, having joined in 2011 after five years as a partner at venture capital firm Palomar Ventures.

Corporate venturing deals in which Jacques was involved at Intuit had included business networking platform Townsquared's $11m series B round, and investments in business invoicing platform Tradeshift and mobile payment platform Clinkle, which shut down in 2015.

Jacques has been replaced by Anton Hannebrink, who has come back to Intuit from merchant aggregation software producer Square and is running M&A, investments and strategy.

Ferreira flees WME for FirstMark


Beth Ferreira

Beth Ferreira has left her role as managing partner at WME Ventures, the corporate venturing arm of talent agency William Morris Endeavor, to return to venture capital firm FirstMark Capital as managing director.

Ferreira, who was featured in the GCV Powerlist 2017, first joined Firstmark Capital in 2011 as a venture partner while also working as chief operating officer of e-commerce company Fab at the same time. WME Ventures brought Ferreira on board in 2015 as one of its founding partners and she helped launch its $50m first fund, which closed in November 2016. In her time at WME, she managed investments in beauty product brand Glossier, digital learning platform Masterclass and pet food delivery service Ollie, among others.

Ferreira worked at Fab between 2011 and 2014 and before that spent three years at e-commerce platform Etsy as vice-president of operations and finance.

FirstMark was spun out of hedge fund sponsor Pequot Capital Management in 2008 and is led by Rick Heitzmann and Amish Jani. In a blog post announcing the hire, Heitzmann said the firm wanted to bring Ferreira back into the fold due to her investment experience, operational expertise, reputation as a startup advisor and her connections in the New York technology ecosystem.

NEWS

Nokia Growth Partners rebrands to NGP Capital

Nokia Growth Partners, the corporate venturing arm of Finland-based communications technology manufacturer Nokia, has rebranded as NGP Capital.

Formed by Nokia in 2005, NGP focuses on mobility, digital health and connected enterprise technology, and its portfolio currently includes on-demand food provider Deliveroo, consumer electronics manufacturer Xiaomi and tourism booking platform GetYourGuide. Companies NGP has exited during that time include India-based media company Network18, online classified listings platform Ganji, LED lighting system producer Digital Lumens and mobile advertising technology provider Fyber.

The firm said in a blog post: "NGP Capital reflects who we are and who we have always been – a globally engaged venture firm focused on growth-stage investing that provides entrepreneurs with capital for the long run."

6 Dimensions seeks $26m for affiliates fund

6 Dimensions Capital, the strategic investment vehicle formed by pharmaceutical firm WuXi PharmaTech and venture capital firm Frontline BioVentures, is raising up to $26m for an affiliates fund, according to a regulatory filing.

WuXi Healthcare Ventures, the corporate venture capital arm of WuXi PharmaTech, combined with Frontline in May 2017 to form US-based 6 Dimensions. The firm announced it was looking to raise $450m for its first US fund in October this year.

The affiliates fund is led by founding partners at WuXi Healthcare Ventures Edward Hu, Ge Li and Wei Li as well as Frontline Bioventures managing partners Leon Chen and Ching Zhu, according to the filing.

6 Dimensions' has approximately $800m of assets under management.

Dialog Axiata digs up $15m for fund

Sri Lanka-based telecoms company Dialog Axiata has committed $15m to a corporate venturing fund targeting local digitally-focused startups.

Dialog Axiata Digital Innovation Fund was formally announced by Malaysian prime minister Datuk Seri Najib Tun Razak on a visit to Sri Lanka. Dialog Axiata's parent company, Malaysia-based Axiata Group, already operates the Axiata Digital Innovation Fund as a joint venture with state-owned VC firm Malaysia Venture Capital Management, having launched it with $30m in 2014.

The company also invests in Cambodia-based startups through the $5m Smart Axiata Digital Innovation Fund.

Evonik chips into $354m fund

Chemicals manufacturer Evonik has provided an undisclosed sum for Digital Growth Fund I, a fund that Germany-based private equity firm Digital-plus Partners aims to close at €300m ($354m).

Digital Growth Fund I will back industrial and financial technology developers with a business-to-business focus, and is primarily focusing on startups based in Germany, Austria and Switzerland.

Evonik has earmarked approximately €100m in investment for technology startups and funds in Europe, North America and Asia as part of an open innovation strategy that will also include €100m for digital technologies testing and development by 2020. The corporate currently has stakes in more than 20 companies and funds, including Airborne Oil & Gas, FRX Polymers, Emerald Technology Ventures, GRC SinoGreen Fund and Pangaea Ventures Fund III.

Henrik Hahn, Evonik's chief digital officer, said: "We are also relying on strategic partnerships with startups. Our strategic investment in Digital Growth Fund I provides access to young technology companies with relevance for Evonik."

Valeo drives Cathay's cartech vehicle to $226m

China-based private equity firm Cathay Capital has launched a RMB1.5bn ($226m) automotive technology fund, with 25% of the capital coming from automotive components supplier Valeo. Valeo and the Yangtze River Industry Fund, a vehicle formed by the government of Hubei province, are the cornerstone investors in the CarTech Fund, which has also received backing from undisclosed additional investors.

The CarTech Fund will invest the capital in China-based car and new mobility technology developers over a four-year period, focusing particularly on electrification, digital mobility, and autonomous and connected car technology.

NEWS

Fortino builds up $240m fund

Belgium-based investment firm Fortino Capital Partners achieved a €125m ($150m) first close of its $240m Fortino Capital II Growth fund with insurance provider AG Insurance as a cornerstone investor. Flemish state-owned investment firm PMV also signed as a cornerstone investor, as did financial services firms BNP Paribas Fortis and Belfius.

The fund will focus on scale-ups and growth-stage companies in Belgium, the Netherlands and Luxembourg. It will invest between $6m and $30m in companies with a minimum turnover of $6m to $12m that are powering digital transformation of traditional industries. Fortino has already identified several potential investees, though it has not yet disclosed details.

The vehicle follows the $95m Fortino Capital Fund, which has invested in 13 companies primarily operating in the software and e-commerce sectors. The first fund focused on early-stage businesses.

Real takes in $140m for two funds

Canada-based venture capital firm Real Ventures closed a C$180m ($140m) fundraising effort backed by internet company Tencent to launch two new funds. The firm attracted more than 60 limited partners, with Singapore state-owned investment firm Temasek among the backers.

Other investors include BDC Capital, the investment arm of state-owned economic development agency Business Development Bank of Canada, HarbourVest and Teralys Capital.

The majority of the cash will be put into a $116.7m fund aimed at seed and early-stage businesses across Canada in a range of sectors such as artificial intelligence and blockchain. The remaining $23.3m will go towards OrbitMTL, a pre-seed-stage vehicle backed by provincial government-owned pension fund Caisse de dépôt et placement du Québec, investment firm Investissement Québec and development capital organisation Fonds de solidarité FTQ.

Real Ventures is initially focusing on Montreal for its Orbit program, but hopes to expand the same approach to other cities in future. OrbitMTL will donate a 20% carried interest to Osmo Foundation, a non-profit aimed at supporting Montreal's innovation ecosystem.

Hadean walls off $119 for life sciences fund

Textiles retailer Varner and Gjensidigestiftelsen, the foundation that controls insurance provider Gjensidige, have contributed to the €100m ($119m) first fund for Norway-based, life sciences-focused venture capital firm Hadean Ventures.

Pension fund Oslo Pensjonsforsikring and SamInvest, a VC arm of Sweden state-owned investment fund Almi Företagspartner, also provided capital, while growth equity firm Argentum invested about $19m in September this year.

The fund will focus on life sciences technology developers in areas of Europe underserved by venture capitalists, particularly the Nordic region.

Hadean was formed by Ingrid Teigland Akay, Walter Stockinger and Siro Perez, all of whom previously worked together at Inventages Venture Capital, a Switzerland-based venture capital firm backed by food and nutritional product supplier Nestlé.

Viola tunes up corporate-backed fintech fund

Israel-based investment group Viola raised $100m from limited partners including insurance firm Travelers Companies and financial services firms Scotiabank and Bank Hapoalim for a dedicated financial technology fund.

The fund, Viola FinTech, will invest in startups around the world with a focus on those in Israel, the EU and the Americas. Its goal is to accelerate innovations among financial institutions.

Viola is an Israel-based technology orientated investment group founded in 2000 that is now managing more than $2.8bn in assets. Viola FinTech, which is targeting $120m to $150m for its final close, will function as an independent fund within the group.

Daniel Tsiddon, founder and general partner of Viola FinTech, told TechCrunch it will act as a co-investment fund, either co-leading rounds or joining after a first institutional investor is in place. It will mostly take part in series A and B rounds, making initial investments between $3m and $7m. The fund's focus includes companies using artificial intelligence to automate regulatory and compliance processes, as well as insurance underwriting, and data platforms and financial services for small and medium-sized businesses.

NEWS

Inven invites $118m in funds

Czech Republic-based energy utility Čez and the EU-owned European Investment Bank (EIB) have each agreed to invest €50m ($59m) 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, and midcaps – companies with a market capitalisation of $2bn to $10bn.

Inven Capital generally provides between €3m to €20m per investment, and targets technologies such as distributed power generation, energy efficiency, energy storage and flexible transmission, clean transport and smart cities. The fund's portfolio includes Sonnen, a Germany-based advanced battery technology producer that most recently secured $85m in October 2016, and Tado, a Germany-based smart climate control technology developer that closed a $23m series C round in April 2016.

The EIB's commitment is guaranteed through the European Fund for Strategic Investments, a €21bn initiative jointly run by the EIB, the European Investment Fund and the EU Commission.

AmorChem generates second Merck-backed fund

Canada-based venture capital fund manager AmorChem Group has launched a seed-stage life sciences fund with $44.2m of capital from limited partners including pharmaceutical firm Merck & Co. AmorChem II's other limited partners include the Quebec government and its capital development organisation, Fonds de solidarité FTQ. The fund will focus on investments in life sciences projects at universities and research centres in Quebec.

AmorChem has managed biotechnology-focused VC funds since 1997 and has more than $350m in assets across five funds. It launched AmorChem I in 2011 with approximately $41.3m in capital, $6.9m of which came from Merck.

AmorChem's successes include the sale of a cystic fibrosis project to pharmaceutical company Vertex Pharmaceuticals and the creation of five spin-off companies including immunotherapy developer Mperia Therapeutics and SemaThera, which is working on diabetes-related macular edema drugs.

JD.com and Plug and Play launch US accelerator

E-commerce firm JD.com has partnered accelerator operator Plug and Play to launch a startup initiative in Silicon Valley in the US, targeting sectors such as retail and logistics startups. As part of the partnership the companies will launch an accelerator initiative to incubate companies developing technologies such as artificial intelligence, cloud, big data and the smart supply chain.

Plug and Play will be responsible for the day-to-day running of the accelerator, selecting projects and mentoring companies. JD.com will offer expertise, consumer insights, technology, and access to its network and platform where startups can sell products.

JD.com is Plug and Play's first collaboration with a China-based company. In June last year it joined forces with Mitsubishi UFJ Financial Group to launch a startup initiative in Japan, the 10th country in which it has set up an accelerator.

Rosatom and Skolkovo to shape startup contest …

Russian state-owned energy provider Rosatom has partnered Skolkovo Foundation, the owner of research-focused Russian Skolkovo Innovation Centre, to launch a startup contest called Vector. It will be open to startups developing digital platforms, robotics, power and energy systems, clean water and materials technologies. Rosatom will work with the finalists. Rosatom will provide up to 300,000 rubles ($5,000) in funding to five contest winners through its corporate venturing unit, while Skolkovo will award grants of up to 5m rubles.

… as RDIF and Alibaba form internet alliance

State-owned investment vehicle the Russian-Direct Investment Fund (RDIF) will join e-commerce firm Alibaba to invest in Russia-based internet companies, Interfax reported. The partnership will seek online-based businesses looking to expand their operations internationally, as well as investments that improve Russia's internet network infrastructure.

The RDIF has ties with Chinese government investors, having partnered the state-owned China Investment Corporation to put $2bn into the Russia-China Investment Fund joint venture in 2012. Both parties added $1bn to the vehicle in July 2017 while also disclosing plans for a $10bn dual-currency vehicle called the Russia-China Investment Cooperation Fund.

NEWS

Navitas Capital builds $60m second fund

Navitas Capital, a US-based venture capital firm that focuses 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, and apartment owner and manager Equity Residential.

Navitas targets companies where energy and software meet 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.

The firm closed its $20m first fund in 2011. Portfolio companies include Matterport, PlanGrid and Honest Buildings. Another portfolio company, renewable chemicals producer Avantium, raised $109m when it went public last year.

Edenred tenders incubator scheme

France-based workplace mobility and benefits technology provider Edenred is to launch an internal incubator that will give its employees the chance to develop ideas that could support the company's core businesses.

Edenred Factory will invite bids in two categories – employee benefits, and fleet and mobility solutions. Two winning teams will work on their projects at Edenred's headquarters for six months. Support will be offered by the firm's innovation teams and an unnamed digital consulting company. Following the incubation period, Edenred plans either to integrate the startups' ideas or to launch separate spinouts.

Rakuten and Techstars launch Singapore initiative

E-commerce firm Rakuten has partnered accelerator operator Techstars to launch an accelerator in Singapore for companies developing social messaging technologies. The vehicle – Rakuten Accelerator, Powered by Techstars – will be particularly interested in companies working with Viber, the instant messaging and voice communication app Rakuten acquired for $900m in 2014.

The initiative is open to early-stage startups developing a range of technologies including artificial intelligence, chatbots and chat-based commerce, cryptocurrency, virtual reality and augmented reality, advertising technology, and voice and image recognition.

Participating startups will each receive a $120,000 investment. The program will start in July 2018 and last for three months. About 10 participants will be admitted, and will be mentored by industry experts provided by Techstars. They will also be able to access resources from Rakuten's global ecosystem, including the opportunity to integrate technologies with Viber.

Cargill and Ecolab fork out for accelerator

Food provider and commodities trader Cargill has partnered hygiene services firm Ecolab and accelerator Techstars to launch the Techstars Farm to Fork Accelerator, aimed at US-based food and agriculture startups. The initiative will run over a three-year period and will target sectors such as agricultural technology, food safety, consumer goods and supply chain management.

The initiative's first cohort will be unveiled this summer ahead of 13 weeks of training in Cargill's native city of Minneapolis. Startups will get access to funding and networking opportunities, and assistance will be available from Cargill and Ecolab executives as well as Techstars' roster of entrepreneurs, mentors and investors.

Big deal: Cell Design deal showcases immunotherapies

James Mawson, editor-in-chief

In venture capital, which shows persistency in returns, it pays to follow the investors as much as the latest hot technology. The fact that David Bonderman, founding partner at TPG, was on the board of Uber, perhaps the most valuable venture-backed private company, indicates his ability to pick companies likely to do well.

Bonderman joined the board of another of his early bets, Kite Pharma, having led its $15m series A round in 2011, and that move has also paid off. Bonderman, through his Wildcat Capital family office, reportedly received $425m from the $11.9bn sale of Kite to drugmaker Gilead Sciences in October last year, according to analysis by Bloomberg.

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Last month, Gilead agreed to acquire US-based corporate venture-backed Cell Design Labs in a deal that valued the company at up to $567m, to help in the development of cancer drugs. The transaction includes a 12.2% stake in Cell Design held by Kite Pharma. Both companies focus on chimeric antigen receptors (Cars) to reprogram a patient's T-cells to transform them into cancer-fighting agents, called Car-T immunotherapies.

Gilead said it would make an initial upfront payment to US-based Cell Design of about $175m and additional payments of up to $322m if milestones were hit.

Cell Design's sole funding, a $34.4m round closed in June 2016, was from a syndicate led by Kleiner Perkins Caufield and Byers that included Kite, Osage University Partners, Mission Bay Ventures and management, including its CEO, Arie Belldegrun.

Adding Kite and Cell Design to its portfolio brings Gilead to the top table in probably the hottest area for advanced therapies, and follows the playbook the company has used over the past few decades to expand.

Gilead paid about $11bn in 2011 for Pharmasset, a company in the last stage of clinical trials for a hepatitis C drug with, like Kite at the time of purchase, no revenues or regulatory approval. Before the earlier acquisition Gilead was mainly active in the HIV treatment market, but the hepatitis drug returned Gilead's investment in less than a year, giving the firm a market capitalisation of $180bn in June 2015 compared to about $30bn beforehand.

Switzerland-listed peer Novartis became the first company to get US regulatory approval for a Car-T therapy, Kymriah, in August 2017 and has been rewarded with about $40bn being added to its market cap in the past year. In October, shortly after its own acquisition closed, Kite became the second Car-T therapy developer to win approval for a treatment.

These treatments will make up just a tiny slice of the $107bn cancer drug market, Wired magazine stated in November. Only about 600 people a year could use Novartis's flagship Car-T therapy for children with advanced leukaemia, and the company has set the price for a full course of treatment at $475,000. Kite's treatment for a form of adult non-Hodgkin lymphoma costs $373,000 for a single injection of the drug.

In the US in 2017, there were an estimated 174,000 cases of leukaemia, lymphoma, non-Hodgkin lymphoma and myeloma, the major blood cancers pursued by Car-T products.

Solid tumours are even trickier, Wired said, as they are made up of a mix of cells with different genetic profiles and so required designing T-cells with antigens that can target only the ones that matter. This is what Cell Design and peers such as Poseida are trying to do.

Flotation and aftermarket performance of Car-T startups

Company	IPO	IPO date	Market cap
Bluebird Bio	$101m	June 2013	$7.4bn
Kite Pharma	$128m	June 2014	Acquired for $11.9bn
Bellicum	$140m	Dec 2014	$316.7m
Juno	$265m	Dec 2014	$6.7bn
Cellectis	$228m	March 2015	$740.5m
Ceylad	$100m	May 2015	$318.1m

Source: Adapted by GCV Analytics from Cell & Gene Therapy Insights' table used in the Advanced Therapies Investment Report 2017. Includes only IPOs where the company had a Car-T focus at the time of going public. Market cap as of December 8 2017.

Immuno-oncology currently dominates the advanced therapy sector, accounting for around half – more than 100 – of all clinical trials last year, and almost $1bn raised in initial public offerings (IPOs) for six Car-T companies, according to a summary of chapter 1 of the Advanced Therapies Investment Report 2017 produced by Phacilitate & Biotech and Money under editor Oliver Ball at King's College London.

The six IPOs show the tight 18-month window for listings, and how even the companies that jumped through have then had widely mixed aftermarket performance, seemingly irrespective of the amount of capital raised.

As Bonderman's success with Kite showed, if the winner is picked then the returns can be as high as nearly any in venture capital, and corporations are becoming more involved. as are syndicates that increasingly include Asia-based investors.

Last month, as well as the Cell Design exit, were two notable deals in the antigen space. Obsidian Therapeutics raised $49.5m from Alphabet unit GV, with participation from Atlas Venture, Takeda Ventures, Vertex Ventures HC, Amgen Ventures, Alexandria Venture Investments and ShangPharma Investment Group.

Meanwhile, Neon Therapeutics extended its series B round, which includes Pharmstandard International, Access Industries, Fidelity Management & Research Company, Partner Fund Management (PFM), Wellington Management, Arrowmark Partners, Nextech Invest, Hillhouse Capital Group, Third Rock Ventures, Inbio Ventures and Casdin Capital, to $106m.

In the last quarter of 2017, Immatics raised $58m from family offices Dievini Hopp Biotech (SAP co-founder Dietmar Hopp) and AT Impf (the Strüngmann family behind Hexal) and venture capital firm Wellington Partners, while UK-based Autolus added $80m from Cormorant Asset Management, Nextech Invest, Syncona, Woodford Investment Management and UK-listed Arix Bioscience.

With the aftermarket performance of the Car-T-focused companies, more IPOs and exits could be on the way. In June last year, Shavit Capital led a $40m round for Gamida Cell alongside VMS Investment Group, Clal Biotechnology Industries (CBI), Israel HealthCare Ventures (IHCV) and Israel Biotech Fund, as well as existing investor and major shareholder Novartis.

NEWS

In May 2017, Takeda announced a $100m collaboration with, and equity an investment in, GammaDelta Therapeutics, a UK-based biotech pioneering a novel type of T-cell therapy. The funding provides Takeda the exclusive right to purchase GammaDelta Therapeutics. GammaDelta Therapeutics was founded in 2016 with the help of venture capital firm Abingworth and the support from Cancer Research Technology based the on research of Adrian Hayday and Oliver Nussbaumer at King's College London and the Francis Crick Institute.

Earlier T-cell technology deals were struck in the last IPO window and many have seen steady progress in their clinical trials. Bellicum raised $55m in August 2014 from RA Capital Management, Perceptive Advisors, Jennison Associates, Sabby Capital, Ridgeback Capital Management, VenBio Select, Redmile Group, AJU IB Investment, AVG Ventures and Remeditex Ventures; Poseida received up to $30m from Ireland-listed Malin in late 2015; and Carsgen's $30m round in January 2016 was co-led by Jolly Pharma's corporate venturing unit and KTB Ventures and backed by Kaitai Capital and JIC Genesis Fountain Healthcare Ventures.

As the Car-T trials evolve, spin-off opportunities are being created. During a talk in Israel, Kite CEO Arie Belldegrun shared a story of meeting General Electric CEO John Flannery. Belldegrun asked Flannery to build a box that, at the press of a button, could process the blood in 15 different ways and extract ready-to-use T-cells. Today, he added, those 15 processes are all performed by different systems, but such a box could allow a hospital to execute blood processing without requiring considerable costs or a sterile room.

GE has been listening. In June this year its corporate venturing arm, GE Ventures, joined Mayo Clinic's ventures unit and VC firm DFJ to invest $13.75m in Vineti, a US-based software platform spun out from GE to target the gene therapy sector's supply chain. GE Ventures also backed the creation of a Silicon Valley company in 2016, Vitruvian Networks, which is building a cloud computing system to connect hospitals to CAR-T makers.

The interest in immunotherapies comes as venture capital backing for biotech generally has soared this year. Data provider PitchBook found funding had passed $10bn this year for the first time. Where Bonderman has led, the smartest investors are following. ◆

Analysis: SenseTime detects $227m from Alibaba

Kaloyan Andonov, reporter, GCV Analytics

China-based AI technology producer SenseTime raised $227m from internet and e-commerce group Alibaba last year at a reported $3bn post-money valuation, probably forming part of the $500m series C round the company is reportedly raising.

SenseTime had previously announced a commitment of undisclosed size by semiconductor technology producer Qualcomm earlier in November.

Founded in 2014, SenseTime is developing deep-learning technology that relies on computer vision to facilitate applications such as facial recognition, image processing, language recognition and vehicle recognition. The company supplies services to some 300 clients including e-commerce group JD.com, telecoms firm China Mobile Communication, smartphone producer Xiaomi and communication equipment manufacturer Huawei Technologies.

In addition to Alibaba and Qualcomm, SenseTime's earlier investors include real estate conglomerate Dalian Wanda, alternative asset management firm CDH Investments and venture capital group IDG Capital.

The artificial intelligence space has seen significant growth in both number and volume of corporate-backed deals. The number of such rounds increased exponentially from 24 in 2013 to 157 in 2016. The estimated amount of total capital invested in such rounds also grew from $1.14bn in 2013 to $3.4bn in 2016. These impressive trends are likely to be sustained in the coming years, as new applications of artificial intelligence technology are found across a wide range of sectors and verticals. ◆

Analysis: Kingsoft Cloud receives $300m

Kaloyan Andonov, reporter, GCV Analytics

Kingsoft Cloud, a China-based cloud storage services provider spun out from office software producer Kingsoft, completed a $300m series D round that featured its parent company.

Kingsoft invested $150m to keep its majority stake in Kingsoft Cloud, which has now raised a total of about $500m. Private equity firm Liyue Investment committed $100m to the round and investment group China Minsheng supplied $50m.

Founded in 2012, Kingsoft Cloud provides cloud computing data storage services to corporate clients, operating data centres in China and North America. It serves around 90% of China's online game developers and expanded into the internet, online video and government administration sectors in 2015. Kingsoft Cloud currently boasts the third-largest market share of China's cloud computing services market, according to market research firm IDC.

Cloud computing technology is hardly a novelty now, so emerging enterprises in this space have been able to raise a significant number of corporate-backed rounds. Historically, such investments have risen significantly, from 62 deals in 2013, estimated at over $2.29bn, to 116 rounds, worth a total of $11.64bn in 2015, although they dipped in 2016, which featured 101 rounds worth a total of $6.1bn. ◆

Big deal: SpaceX shows space is the place

Robert Lavine, news editor

SpaceX, the space services provider backed by internet and technology group Alphabet, added another $100m to a $350m funding round last year, showing the space sector is still attracting some big money.

Also known as Space Exploration Technologies, SpaceX develops and produces spacecraft it launches from sites in Florida, California and Texas to transport cargo and personnel into space, and has introduced innovations such as reusable rockets. The additional funding was revealed through a regulatory filing that indicated the number of participants in the round increased from 21 to 25. SpaceX has not, however, revealed the identity of any investors in the round, which reached its $350m first close in July.

Google, now part of the Alphabet group, joined financial services group Fidelity to invest $1bn in the company in early 2015, following about $250m in funding supplied by DFJ, Rothenberg Ventures, Valor Equity Partners, Capricorn and Founders Fund since 2002.

SpaceX is raising the funding, which regulatory filings indicate values the company at $21bn, as it prepares for the first launch of its Falcon Heavy rocket, which it claims will be the world's most powerful operational rocket by a factor of two, this year. The round is a reminder that although its members are not as numerous as some other sections of the startup space, the satellite and space technology sector is still a source for venture capital investment.

Apart from SpaceX, the industry's most prominent companies include satellite operator OneWeb, which completed a $1.2bn round in December 2016 led by telecoms firm SoftBank which included fellow corporates Qualcomm, Airbus, Coca-Cola, Virgin Group, Totalplay, Hughes Network Systems and Bharti Enterprises.

O3b, another satellite services provider, in which Alphabet, satellite provider SES and conglomerate Sofina have invested, closed $460m in financing in late 2015, while Kymeta, which builds smart antenna beams for satellites, secured $73.5m in an April 2017 round featuring satellite operator Intelsat, taking its total funding to approximately $218m.

Satellite data provider Satellogic raised $27m in a Tencent-led series B round in June 2017, the month before Astroscale, a developer of space debris removal technology, received $25m in a series C round that included ANA Holdings and OSG Corporation.

The funding has not been restricted to satellite-related device manufacturers. In the adjacent geospatial data sector, Orbital Insight completed a $50m series C round backed by Itochu and corporate venturing units GV and CME Ventures in May 2017, and Descartes Labs raised $30m in a Cargill-backed round in August.

On the fundraising side, meanwhile, SES, Airbus and spaceflight services firm Telespazio were among the limited partners in the $95m space-focused fund closed by private equity firm Seraphim Capital in September this year.

The number of companies operating in the sector may still be relatively small, but the space services industry remains a viable destination for VC funding, and will likely remain so as satellite, rocket and data technology continues to advance. ◆

Analysis: Moda Operandi attracts $165m

Kaloyan Andonov, reporter, GCV Analytics

US-based fashion e-commerce platform Moda Operandi has completed a $165m funding round featuring luxury goods conglomerate LVMH (Louis Vuitton Moët Hennessy), having been backed previously by a range of corporate investors.

This latest round, co-led by Apax Digital, C Ventures and K11 Investment, included financial services group Fidelity and New Enterprise Associates.

NEWS

Founded in 2011, Moda Operandi runs an online platform that enables users to pre-order designer clothes while they are still being shown on the runway, and also offers curated recommendations. The company's earlier backers include media group Advance Publications, LVMH and Fidelity.

The fashion, apparel and accessories space has been an attractive one for corporate venturers. The deal count in this space seems to have plateaued at just over 50 rounds a year since 2015, while the overall funding in corporate-backed rounds is rising. At the time of writing it had reached $5.67bn for 2017. ◆

Corporate venturing in 2017: The trends

The upper end continued to grow and corporates launched a raft of artificial intelligence (AI) funds, as bike sharing, real estate, smart vehicles and urban farming drew capital. News editor Robert Lavine reports

Billion-dollar babies

The stats will tell you that seed and early-stage funding is drying up – though how much that has to do with the preponderance of crowdfunding and now initial coin offerings as alternatives remains to be seen – but there was no sign the bubble was going to burst at the top of the market, as the most valuable private VC-backed companies continued to close huge rounds. In previous years, nine figures was the standard, but in 2017, billion-dollar rounds emerged at a frequency previously unknown.

This was partly driven by SoftBank's Vision Fund, reportedly now at almost $98bn, and Chinese investors which made use of the large capital reserves being directed toward the tech space – almost every huge round could be traced to one of those two factors.

China-based on-demand ride platform Didi Chuxing raised $5.5bn from investors that reportedly included SoftBank in April, and the corporate is in the process of spearheading a primary and secondary round for US counterpart Uber that could top $10bn. Uber's biggest US rival, Lyft, closed a $1.5bn round led by CapitalG, after Singapore-based Grab took $2bn from Toyota, SoftBank and Didi Chuxing in July, and India-based Ola completed a $1.1bn round backed by SoftBank and Tencent in October.

Some of 2017's other big winners included WeWork *(see below)*; Meituan-Dianping, the local services platform that raised $4bn in a Tencent-led round in October; e-commerce marketplace Flipkart, which added $2.5bn from the SoftBank Vision Fund to $1.4bn raised from Tencent, eBay, Microsoft and Naspers a few months earlier; food delivery platform Ele.me, which received more than $1bn from Alibaba in June; and news app developer Toutiao, which raised $1bn in an April round that allowed corporate backer Sina to exit.

Corporates seek out AI

Artificial intelligence had a sizeable presence in the mainstream media last year and featured almost everywhere in funding announcements, but perhaps the greatest indication of the fever around the sector was the number of corporate venturers setting up dedicated AI funds.

There were certainly precursors – IBM launched a fund centred on its Watson cognitive computing platform in 2014 and Amazon did the same for its Alexa technology the following year – but Microsoft was the first corporate in the current wave to enter the fray, announcing a dedicated fund in December 2016 that would be overseen by its Microsoft Ventures unit.

Google established an AI unit called Gradient under the leadership of vice-president of engineering Anna Patterson, while Toyota put $100m into Toyota AI Ventures, led by Jim Adler, vice-president of data and business development for Toyota Research Institute, in July.

Salesforce, perhaps the most prolific of corporate investors in terms of fund creation, launched the $50m Salesforce AI Innovation Fund in September before deep-learning technology producer SenseTime joined asset management firm CDH Investments to begin raising a $450m-plus fund in October. Amazon, meanwhile, invested another $100m in the Alexa Fund last month.

Cars get smarter

Ride hailing retained its ability to raise huge amounts of funding in 2017, and autonomous and connected car technology developers including Mapbox, Cambricon and Nauto all closed nine-figure rounds, but the action in the transport sector increasingly took place in the form of funds and acquisitions.

Baidu made the biggest step on the fund side, forming the $1.5bn Apollo Fund in September with 70 industry partners intended to supply funding to about 100 autonomous driving technology developers in the next three years, while Foxconn joined IDG Capital the following month to create a transport-focused fund also sized at $1.5bn.

Samsung put up $300m in September for a strategic unit called Samsung Automotive Innovation Fund, and Nio Capital, a strategic unit overseen by smart EV developer Nio, is reportedly targeting $500m for its next fund. Automotive components producer Valeo took more of a passive role, supplying 25% (about $55m) of the capital for a connected car technology vehicle formed by private equity firm Cathay Capital earlier this month.

There were some big corporate exits in M&A deals too. Continental agreed to acquire connected car security system developer Argus Cyber Security for about $400m, autonomous driving company Nutonomy was bought by Delphi Automotive for $450m, and connected car technology developer Automatic Labs was acquired by Sirius XM for about $100m.

Bicycle! Bicycle!

The other big news in the transport sector was the rapid growth of bicycle sharing, which was largely driven by two China-based operators – Ofo and Mobike.

Ofo reportedly raised $2.15bn across three rounds last year, beginning with a $450m series D round in March backed by Didi Chuxing, before Alibaba's financial services affiliate, Ant Financial, added an undisclosed amount in April. The series D valued it at more than $1bn, a figure that had reportedly tripled by the time Ofo raised $1bn in an Alibaba-backed round more recently, having secured $700m in a July series E co-led by Alibaba and Hony Capital in between.

Mobike received $215m in a series D round co-led by Tencent last January that included fellow corporates Ctrip and Huazhu Hotels, before investors including Bloomberg added $85m. Tencent subsequently led a $600m round for the company in June, and it could well be preparing another huge round that will support international development. Hellobike, meanwhile, raised $350m from investors including WM Motor, and Youon Bike went public and sealed a $123m round for one if its subsidiaries.

The industry is perhaps more volatile than most, as the high-profile failures of some other China-based operators has already shown, but if the automotive version of the sector is anything to go by, this trend will accelerate this year, especially as international players scramble to get in on the act with their own local versions.

Proptech gets moving

Following the expansion of the global property market, real estate and property technology has been one of the boom areas of recent times. Technology-equipped real estate brokerage Compass secured a $450m investment by the SoftBank Vision Fund that valued it at $2.2bn post-money, after China-based counterpart Lianjia received $436m from real estate developer China Vanke in April, but they were far from the only sizeable deals in the sector.

Airbnb raised $1bn in March from investors including CapitalG for its short-term accommodation platform, while budget hotel brand Oyo secured $250m. India-based accommodation rental platform NestAway and China-based counterpart Chengjia each closed $50m rounds to help customers find short or long-term accommodation, and rental payment platform Fangsiling raised $45m in its series E round in August.

The co-working sector continued to gather pace, as WeWork raised $800m from SoftBank and Hony Capital across two rounds, before SoftBank agreed to pump another $4.4bn into the company in August. URWork raised $178m in an August round in which property developer Beijing Land Capital joined fellow corporates Aikang and Star Group, while another China-based operator, 5Lmeet, secured $58m in May.

Property developers have meanwhile been one of the fastest groups to join corporate venturing. Nan Fung and Wanda have spent the most, but the likes of Sansiri and Westfield also made appearances. Proptech-focused funds such as those formed by Fifth Wall Ventures and Navitas Capital were notable for the number of real estate developers and operators among their investors.

Down on the farm

It may not yet be the biggest sector, but an area that began to emerge last year was urban farming, as startups began to raise funding to support indoor farms combining hydroponics, seed and AI technology to grow plants. The relatively central location of the farms means fresh produce can be shipped quickly and efficiently to restaurants and grocers.

Plenty raised the most money, securing $200m in a July series B round led by the SoftBank Vision Fund, but Bowery received $20m in a series A round backed by Alphabet's GV unit, and Germany-based InFarm also received funding in a corporate-backed round. Agricultural data software developers such as Farmlogs, Prospera, AgroStar, Phytech, Agrilution and Agrible raised capital to develop the software that supports more efficient farming.

Agricultural technology and new farming models remain for now a relatively small part of the startup scene, but a rapidly growing global population, combined with increasing migration to cities, funding attracted by infrastructure-based sectors such as co-working spaces, and innovations hinted at by Amazon's acquisition of Whole Foods all suggest it will expand quickly. ◆

SPECIAL REPORT

The talking points for … 2018

In our annual corporate venturing survey of industry leaders, we asked: "What were the most important trends in 2017?" We featured some of those responses in last month's issue. This month we examine their insights into the big opportunities of 2018. Both these questions will also be part of our full annual review – World of Corporate Venturing 2018 – to be published at the Global Corporate Venturing & Innovation Summit in Monterey, California, on January 31. The full survey includes insights on best practices in corporate venture capital.

Sue Siegel, chief innovation officer, GE, and co-chairman of the GCVI Summit

Megafunds through microfunds – blurring and mixing of strategic and financial funds. For example, SoftBank Vision Fund is highly strategic for SoftBank and its assets.

SoftBank is rewriting the rules of investing. Call it disruptive investing – venture, private equity, hedge – all in one fund. It has to deploy $5bn every quarter to stay on its proposed investment track. It is raising a $200bn fund right now, which would require a quarterly commitment larger than a considerable segment of the venture industry.

We are also seeing a pendulum swing back to independent venture from corporate venture capital, given the huge amounts of money pouring into groups like KKR, SoftBank and others. This may make it harder for CVC to compete though clearly CVC is here to stay. We will need to be even more assertive about how we add value.

Venture capital is becoming more of a reality for women.

Returns from the top quartile in private equity are greater than the top quartile in venture, again, due to unprecedented levels of realisation opportunities for private equity firms. As a result, larger private equity firms are reaching further down the risk spectrum for opportunity.

Bubbles may be a problem. The world is awash in cash, with pension and sovereign wealth funds taking on much greater operating roles in portfolio companies No company is off limits, such as the Chinese proposing to invest $100bn in Aramco. Chinese investors, particularly sovereign investors, want to pursue artificial intelligence (AI) and machine learning in the same swarm fashion as they did solar.

Every major and minor industry is addressing transformation, mostly still from a defensive position – for example, cost out versus yield-enhancing perspective.

Data is now readily accessible and knowledge is far more valuable.

Other trends include blockchain moving to the supply chain, and, in a continuation of 2017, overvalued companies will have to right-size, signalling a return to investment basics.

SaeMin Ahn, managing partner, Rakuten Ventures

We have another generation of richly-funded and valued AI companies readying to create value. Are we in for another flattening and acquihiring market?

How much of the barrel can you scrape until there is a critical lack of human resources for engineering and overall computer science? Where does capital go to for safe harbour?

How does increasing scrutiny on General Data Protection Regulation affect business models once thought to be durable?

Where do the 30 other unacquired non-backed autonomous driving startups place themselves in market driving – forgive the pun – towards vertical integration.

Mirroring the bike-sharing model of China without context of backers and intention will lead to a rude awakening.

SPECIAL REPORT

Biplab Adhya and Venu Pemmaraju, co-heads, Wipro Ventures

Serverless computing, industrial cybersecurity, augmented reality applications in enterprise use cases, AI and machine learning-driven diagnostics.

Grant Allen, head of ABB Technology Ventures

Automating automation. Over the past two years, we have seen countless startups go after automation itself, for instance software to make robots smarter or more adaptable. But we expect there will be enormous value created by stipulating to the automation hardware and robotics we have today and thinking about how to automate the installation, calibrating and fine-tuning of that machinery.

Riyadh AlRuwais, partner, STC Ventures

Cryptocurrency – initial coin offerings versus venture capital.

Amartino

Mariano Amartino, Latin American startups director, Microsoft

In Latin America – fintech and edtech.

Ron Arnold, managing general partner, IAG Firemark Ventures

Valuations and particularly early-stage valuations. Some of these just looked to be way over-cooked. At some point, this will come back to earth and this has the potential to harm the industry.

Askew

Tony Askew, founder partner, REV Venture Partners, and co-chairman, GCV Symposium 2018

The single biggest factor propelling the investment landscape is the volume of capital now being deployed – $240bn in the past three years, of which more than a third came from non-traditional VC sources – sovereign wealth, mutual and pension funds and an expansion of corporate investment activity. This has led to expanded valuation expectations, particularly at early rounds from more intensive competition for deals.

Aysola

Amit Aysola, managing director, Wanxiang Healthcare Investments

Blockchain in healthcare.

Banta

John Banta, managing director, Blue Cross Blue Shield Venture Partners

The continued quest for value-based – or at least more effective and efficient – clinical approaches.

Miroslav Boublik, group head of special projects, Home Credit Venture Capital

Alternative payment mechanisms.

Louis-Philippe Boucher, venture analyst, Randstad Innovation Fund

Data collection, storage and analytics.

Wendell Brooks, president of Intel Capital

I would like to see us work together more often with our peers in the CVC community. In the current landscape there is too much money chasing too few deals. I believe CVCs acting together provide substantial benefit to entrepreneurs and can accelerate the routes to market for startup companies. Working together, CVCs bring the resources of our collective parent corporations and deliver value beyond dollars.

SPECIAL REPORT

Scott Brun, vice-president of scientific affairs, and head of AbbVie Ventures

Areas of portfolio focus by technical area or platform will become important. As new funds begin investing, how many more bets on immuno-oncology will VCs be willing to make? Will VCs be willing to invest in immunoscience and neurodegenerative disease even though translational uncertainty exists in these areas?

Laurel Buckner, senior vice-president and managing director, ATN Ventures

We will continue to see investment in AI grow, but now it will be in even more bespoke solutions for verticals. There will be more investment in this area. The tough decision for investors will be what exactly is the value of AI in this instance and how is this AI company or technology doing something different from others. The trick is, as always, separating the wheat from the chaff.

Roel Bulthuis, managing director, Merck Ventures

Bulthuis

Still cancer immunotherapy, but away from cell therapy.

Tony Cannestra, head of Denso Corporate Ventures

Advanced robotics, mobility, manufacturing, internet of things.

Leo Castellanos, investment director, Saatchinvest

Castellanos

Brexit [Britain leaving the EU].

Oscar Chamberlain, general manager, Petrobras/Cenpes

The internet of things and the software industry.

Tony Chao, head of Applied Ventures

Chao

Artificial intelligence and deep learning.

Piyush Chaplot, partner, Innosight Ventures

The bitcoin and initial coin offerings bubble might burst.

Scarlett Chen, director of strategic investments, Prudential

Will fintech investments eventually cool down?

Eddi Danusaputro, CEO, Mandiri Capital Indonesia

Danusaputro

Unbanked and underbanked market.

Kai Engelhardt, head of corporate strategy, Mahle International

Software topics in general – navigation material, in-car security, over-the-air, services). Digital sources – more and more applications to approach end-customers in cars. Operating systems in cars – more data and faster processing as a prerequisite for autonomous driving.

Jay Eum, co-founder and managing director, TransLink Capital

Continuation of blockchain technology, cryptocurrencies, and initial coin offerings as an alternative to traditional fundraising.

SPECIAL REPORT

Aurora Fagerhus, executive assistant, Marsec

Internet of things, transportation technology and shipping.


Fung

Ernest Fung, senior director, head of international corporate development, JD

The Committee on Foreign Investment in the US, an interagency committee of the US government that reviews the national security implications of foreign investments in US companies or operations, and cross-border acquisition approvals. Initial coin offerings and cryptocurrency impact on capital raising and strategic investments. Rising private market valuations in emerging markets.


Gilmour

William Germain, director of mergers and acquisitions and strategic development, Inmarsat, and venture capital adviser, Techstars

Internet of things, artificial Intelligence and digital service platforms.

David Gilmour, head of BP Ventures

Connected cars, battery management.

Larry Harper, vice-president, Stanley Ventures, Stanley Black & Decker

My biggest issue is manpower – having enough people to close the deals that we have on the table. We have no issues with dealflow, quality companies or leaders, and we definitely do not have any issues internally with support for getting deals closed. My problem is strictly manpower.

George Hoyem, managing partner, In-Q-Tel

Scarcity of human resources – it will become harder and more expensive to hire and pay for human resources in tech focused markets. This will drive startups to second-tier markets.


Hoyem

Rising cost of building a startup – bases on full employment and real estate costs, the cost to build startups will continue to rise precipitously.

When will the music stop? VCs will continue to worry about valuations and the simple fact that we are at the top of the business cycle, which could continue for a few years or just as easily correct.

Bevin Jacob, partner and co-founder, Automobility

Real-time sensing and sensor fusion.


Joffe

Benjamin Joffe, partner, Hax

AI and machine learning are definitely here to stay. Healthtech is likely to see more products come to market, but in niche categories and medical applications. We are also excited about robotics.

Alexander Kalinnikov, investment manager, VTB Capital Investment Management

Machine learning for medicine, pharma and biotechnology.

Rimas Kapeskas, managing director, UPS Strategic Enterprise Fund

AI, robotics, automation, lack of team resources. Keeping leadership focused on our CVC thesis – getting pressure to seek greater financial returns, and get closer to M&A, as opposed to an extension of R&D, piloting and learning about new models and technologies.

SPECIAL REPORT

Brendon Kim, managing director, Samsung Next Ventures

Artificial intelligence and edge computing.

Imran Kizilbash, vice-president and head of Schlumberger Venture Fund

Automation, analytics and machine learning has been a trend for the past few years. However, the application of these technologies in the energy space is still embryonic and a great deal of potential is currently untapped.


Kizilbash

Shashi Kumar, director, SK Telecom

Artificial intelligence, machine learning and deep learning.


LeSage Krause

Nityen Ranjan Lal, managing director, Icos Capital Management

Hype is coming back it seems, thus higher valuations, more bad propositions (initial coin offerings?) getting funded.

Jacqueline LeSage Krause, managing director, Munich Re/HSB Ventures, and co-chairman, GCV Symposium 2018

AI applications, new materials, bio and robotics intersecting.

Jon Lauckner, president, GM Ventures

Autonomous technology, quantum computing and wireless communications standard 5G.

Crispin Leick, managing director, EnBW New Ventures

Augmented reality.

Fernand Lendoye, managing director, Aviva Ventures

Autonomous vehicle, smart mobility, blockchain, healthtech, insurtech.


Lietha

Victoria Lietha, ABB Technology Ventures

Augmented reality, virtual reality, drones and autonomous cars.


MacGregor

Wayne MacGregor, strategic business development, Naspers

Online-to-offline.

Ashish Mahashabde, principal, IBM Ventures

Agriculture tech, augmented reality, cybersecurity, deep learning.


McManus

Brad McManus, managing director, Motorola Solutions Venture Capital

The biggest investment issues for 2018 will be legacy issues in CVC – how to optimise inorganic innovation into proprietary platforms and then how to monetise for business outcomes. We have monetised our capital investment well, but producing strategic outcomes that can be measured in terms of incremental revenues and profits remains a challenge that we will be working to solve in the coming year.

SPECIAL REPORT

Dominique Mégret, head of Swisscom Ventures

How will the blockchain-related applications develop if and when the cryptocurrencies crash?

How fast will voice and gesture-based recognition become the interface of choice to command mobile and TV screens?


Muhart

Tom Montgomery, senior vice-president, De Beers Ventures

Blockchain, AI.

Keith Muhart, senior director, Qualcomm Ventures

Consumer and industrial internate of things are gaining some good momentum and this should translate into some great investment opportunities in 2018.


Murota

Koji Murota, head of KU-iCap

Artificial intelligence, the next generation's battery, antigen-specific T-cells.

Girish Nadkarni, president, Total Energy Ventures

Smart grid and machine learning.

Janis Naeve, managing director, Amgen Ventures

The crossover between tech and biotech to address real-world evidence and delivery of value-based healthcare.

Jay Onda, startup investments, Orange Silicon Valley

Artificial intelligence, initial coin offerings, services for underserved markets.

Tony Palcheck, managing director, Zebra Ventures

AI, automation, analytics and blockchain.


Parashar

Amish Parashar, partner and director of strategic business development, Yamaha Motor Ventures

Specific, narrow applications of automation and autonomous systems.

Charles Paul, vice-president, Henkel Ventures

Sensors, energy capture and storage.


Quay

Ulrich Quay, managing partner, BMW i Ventures

Artificial intelligence.

Susana Quintana-Plaza, partner, Siemens Next47

Autonomous driving.


Quintana-Plaza

Mayuresh Raut, managing partner, Salamander Excubator Angel Fund

AI, blockchain, cryptocurrency hedge funds.

Erik Ross, head of Nationwide Ventures, Nationwide Insurance

Cybersecurity, autonomous tech, machine learning and artificial intelligence.

SPECIAL REPORT

Marek Rubasinski, former director of startup investments and partnerships, Sky Ventures

In Europe, getting in early on new businesses leveraging PSD2 (Europe's Second Payment Services Directive) personal banking regulation changes.


Rubasinski

Gaurav Sachdeva, JSW Ventures

Robotics, big data, cleantech.

Seiji "Eric" Sato, unit general manager, Sumitomo Corporation Europe

The electrification of the automotive industry.


Schroeder

Reese Schroeder, managing director, Tyson Ventures

Agri and foodtech, artificial Intelligence, autonomous vehicles, factory automation, internet of things.

Jean-Pierre Sedaghat, managing partner, Vantage Capital Partners

Artificial intelligence.


Shen

Clara Shen, catalyst director, Mars

Non-tech CVC, China, multinational corporations in China.

Bonny Simi, president, JetBlue Technology Ventures

The biggest investment opportunities in air transport and travel will be in AI and machine learning, blockchain, mobility and the industrial internet of things.

Markus Solibieda, managing director, BASF Venture Capital

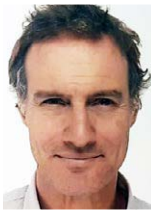
Platform business models.

Sam Tanskul, managing director, Krungsri Finnovate

Artificial intelligence.

William Taranto, president, Merck Global Health Innovation Fund

In digital healthcare, it remains to be seen if the IPO and M&A market will open up. My guess is more M&A than IPO. We have seen some inflated values for healthcare IT companies which I think will fail and come down rapidly.


Thurn und Taxis

Philipp Thurn und Taxis, managing director, Constantia New Business

Dry powder if the public markets come down, consolidation in a number of areas.

Frank Tong, global head of innovation and strategic investments, HSBC

Emerging markets in Asia and China have proved to be avid adopters of new financial technologies thanks to young and increasingly affluent digital natives with more sophisticated requirements from their financial services providers. This is turning China, Southeast Asia and India into leaders in the fintech space.


Tong

Continuing to meet these growing needs involves spotting global technology trends – artificial intelligence, blockchain, distributed ledger technology, biometrics and digital identity – and identifying the innovations that will most benefit customers. We will also continue to explore the potential of blockchain and distributed ledger technology to make trade easier.

SPECIAL REPORT

Nobuyuki Toyoda, manager, office of the president, JSR

Artificial intelligence.

Jonathan Tudor, technology and strategy director, Centrica Innovations at Centrica

Valuation hypes, CEOs who choose to have only VC or only corporate investors. Another variation of the financial versus strategic question.

Tudor

Masatoshi Ueno, senior manager, AGC Asahi Glass

Open and crowd collaboration for innovation.

Ueno

Thomas Van Halewyck, founding partner, Bundl

Location-based entertainment.

Rita Waite, manager, Juniper Networks Ventures

Artificial intelligence, machine learning and blockchain.

Waite

Paul Wallace, managing director, Heritage Group

Healthcare technology.

Wallace

Robert Wetzel, vice-president of corporate development, Enterprise Holdings

How to respond to the continued acceleration of advances in autonomous technology, AI, machine learning, and augmented and virtual reality, and the implementation into products. Accelerated M&A. More and broader CVC investments. Legislative responses to autonomous technology and AI.

Thomas Whiteaker, partner, Propel Venture Partners

Regulation of initial coin offerings. These will continue to be closely scrutinised by the regulators. Unfortunately, there will be bad players that screw it up and force regulators to get more involved. Lack of IPOs and exits – companies are staying private and not going public. Over time, this negatively impacts the venture industry. DPI (distributed to paid in, or the ratio of money distributed to limited partners by the fund, relative to contributions) matters.

Robin Wye, research commercialisation manager, BP

AI will have the hype for a while, but not all things branded AI are AI – even if they are, they are not useful. Old tech – tech for the aged. Plus a developing market in aid tech – investment in stuff for developing countries, but still with an eye to profit, not charity-driven.

Wye

Shintaro Yamakami, CEO, Colopl Next

Affluent money in the market equals increasing investment size and valuation.

Yamakami

Jimmy Zhu, vice-president, Citi Ventures

Operationalising the promises made from AI and machine learning.

SECTOR FOCUS

Transport drives forward

Kaloyan Andonov, reporter, GCV Analytics

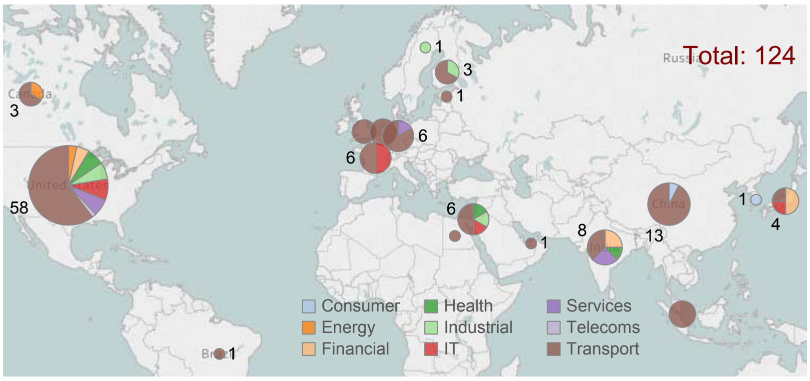
GCV Analytics defines the transport sector as encompassing ride-hailing, car-sharing and rental services, autonomous, connected and electric car technologies, public mobility and parking, vehicle hardware and maintenance as well as vehicle marketplaces and platforms, among other areas, such as air and rail transport.

GCV reported 124 rounds involving corporate investors from the transport sector for the period between November 2016 and October 2017. A significant portion of those (56) took place in the US, while 13 were hosted in China and 8 in India

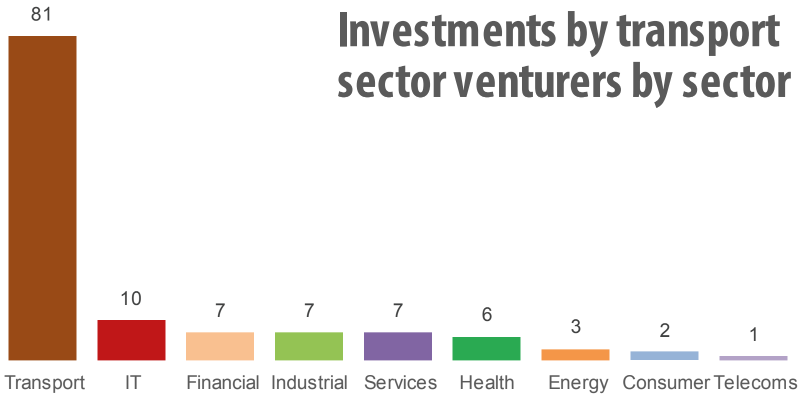
The majority of these commitments went to emerging enterprises from the same sector (81), with the remainder going into companies from the IT (10), financial (7) and industrial (7), among other sectors.

On a calendar year-on-year basis total capital raised in corporate-backed investment rounds went up to $5.63bn in 2016, more than double from the $2.32bn allocated in 2015. The deal count also soared, rising by 60% from 51 deals in 2015 to 82 in 2016. This upward trend was sustained by the end of October 2017, when GCV had reported 111 deals, worth an estimated $9.98bn by then.

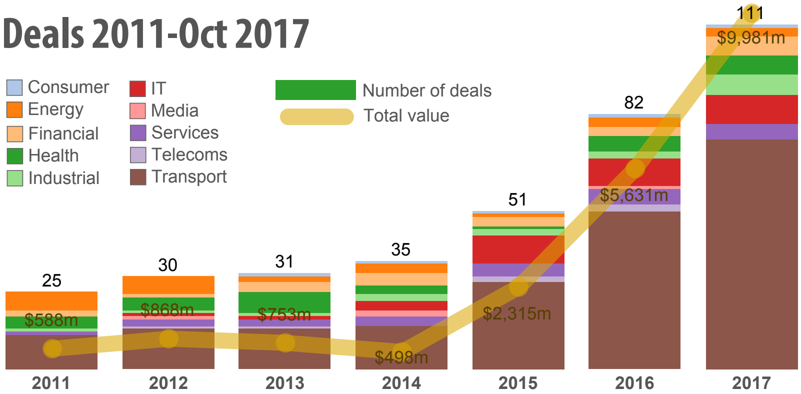
Global view of past year's deals



Investments by transport sector venturers by sector



Deals 2011-Oct 2017

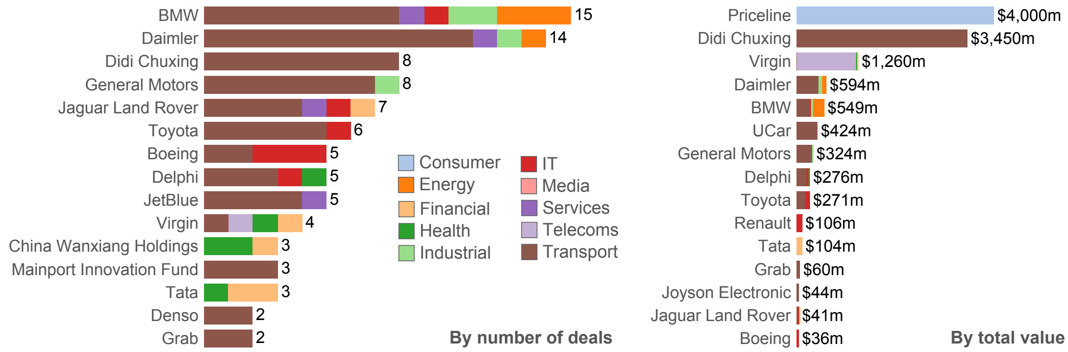


As outlined later in this article, the 10 largest investments by corporate venturers from the transport sector mostly involve transport-related businesses.

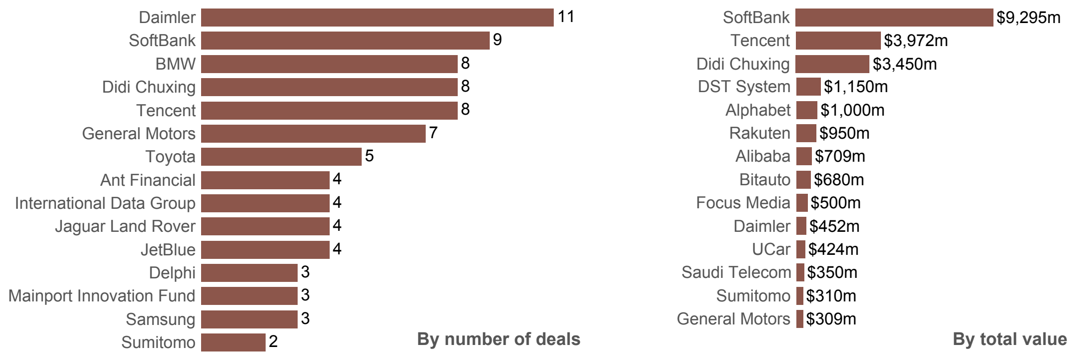
The leading corporate investors from the transport sector were Germany-based automotive manufacturers BMW and Daimler, along with China-based ride-hailing platform Didi Chuxing and US automotive manufacturer General Motors (GM). Daimler, BMW, Didi Chuxing and GM were also among the top corporate investors committing to transport-specific enterprises along with telecoms firm SoftBank and internet firm Tencent.

SECTOR FOCUS

Top transport sector investors in the past year



Top investors in transport enterprises in the past year



The presence of an internet company like Tencent as important investor in this space is not accidental. Connected car tech is already a battleground for internet companies in the car market. As in connected vehicles, shopping and entertainment are expected to become an inseparable part of a driver's experience. According to the Financial Times, at the moment, Banma – a China-based joint venture between e-commerce company Alibaba and carmaker SAIC Motors, is taking the lead in development of an in-car operating system, AliOS.

Car connectivity is now greater in China, according to a recent report by consultancy firm McKinsey, than in the western world but this may change soon. Banma announced a partnership with French-Chinese joint venture Dongfeng Peugeot-Citroën – Citroën is expected to launch its first AliOS-based internet car in 2018. This makes AliOS a significant rival to Apple's Carplay and Alphabet's Android Auto, car operating systems being developed in the US.

Alibaba is not alone on this area. Tencent also announced a joint venture with Guangzhou Automobile Group, which plans to build "an intelligent and connected car brand with uniqueness and competitiveness". Internet company Baidu's ambitions appear to extend beyond connected vehicles. In 2015, it launched its operating system Baidu CarLife, and its subsidiary Apollo, discussed further in this article, develops hardware, software and cloud solutions for autonomous vehicles. Corporates from the broader internet and e-commerce space are expected to remain significant contributors to new businesses working on car transport technologies.

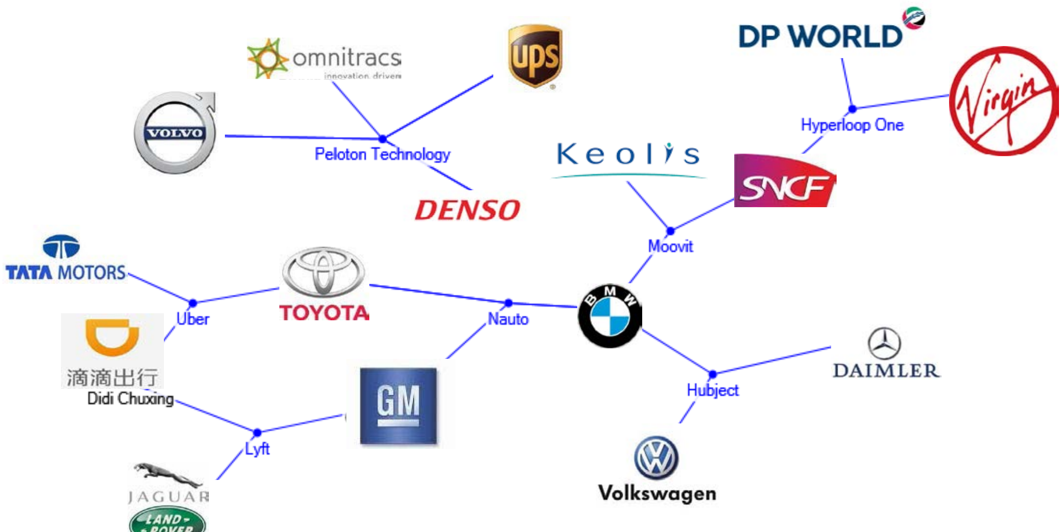
Overall, corporate investment in emerging transport-focused enterprises saw a steady and sustained growth from 2015 to 2016 in terms of both deal count and total capital dollar amounts. According to GCV Analytics data, $23.76bn was invested over 142 rounds in 2016, significantly up from the $14.5bn invested over 121 deals in 2015. This upward trend appears to be sustainable, as by the time of writing, there was already $35.37bn invested in 156 deals.

Subsectors that have driven most of the growth of transport tech since 2014 have been ride-hailing, autonomous driving, connected and electric car technologies, and, less so, vehicle marketplaces and online vehicle e-commerce platforms. Asia-based companies in the ride-hailing space account for the largest dollar figures.

Innovative developments in road transport are taking place primarily in the US and East Asia and there is a growing concern that Europe may lag behind and see its traditionally strong automotive and transport sector seriously disrupted. A 2017 report – Assessment of Access to Finance Conditions for Innovative Road Transport – by the European Investment Fund and the European Commission, stated: "Due to its traditionally smaller and more risk-averse VC and capital markets, Europe is losing out on the US, even in areas where it could enjoy a natural competitive edge." The report,

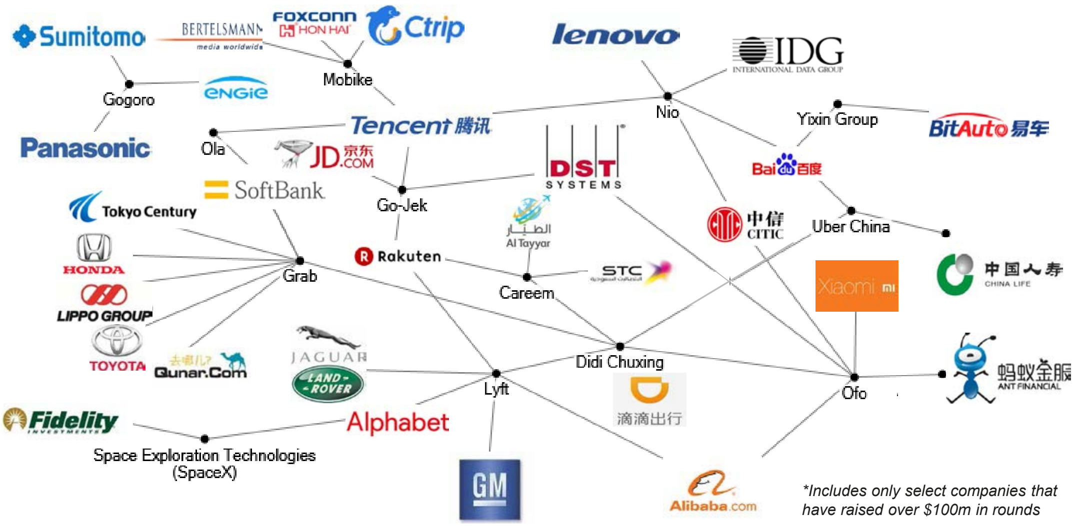
SECTOR FOCUS

Co-investments by transport sector venturers 2014-Oct 2017



Includes only companies with 3 or more corporate co-investors

Corporate co-investments in transport enterprises 2014-Oct 2017



**Includes only select companies that have raised over $100m in rounds*

however, did mention the role of Europe-based corporate venturers from the sector. “The corporate VC arms of the major European original equipment manufacturers are, however, very active investors in innovative transport technologies, which is a positive development.”

The report examined financing gaps and sub-optimal access-to-finance conditions for Europe-based companies that develop road transport technologies and services. It found that the financing gap is particularly critical for growth-stage “for urban green mobility solutions and services as well as low-carbon highly energy-efficient road vehicles”, which was estimated at between €8.9bn ($10.5bn) and €19.4bn. Thus, corporate venturers may find plenty of opportunities to finance promising entrepreneurial projects in this space and at that stage of development in Europe.

Ulrich Quay, head of BMW i Ventures, the venturing arm of Germany-based carmaker BMW, summed up the major considerations in the autonomous vehicle space: “We find it important to be able to test autonomous vehicle tech before we invest. We prefer earlier-stage investments, ideally with an existing customer base from other industry verticals.”

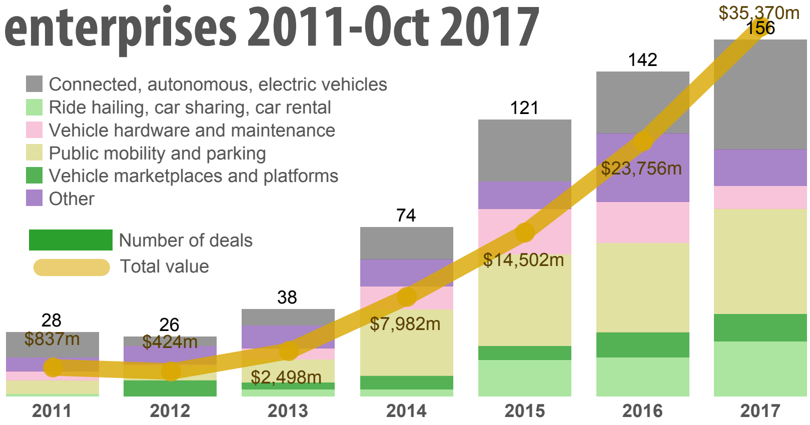
Deals

Transport corporates invested in a number of large rounds, raised primarily by other transport-focused businesses, mostly from the ride-hailing and autonomous vehicles space. Three of the top rounds were above the $1bn mark.

SECTOR FOCUS

Tencent led a $4bn round for China-based online services provider Meituan-Dianping, which reportedly valued the it at $30bn. Priceline Group also participated in the round, as did the Singaporean state-owned GIC, Sequoia Capital, Canada Pension Plan Investment Board, Trustbridge Partners, Coatue Management, IDG Capital, Tiger Global Management and China-UAE Investment Cooperation Fund. Meituan-Dianping runs a local services and e-commerce platform that processes about 21 million orders a day, for items such as food, event tickets and flights, connecting 280 million customers each year with a network of some 5 million local businesses.

Investments in transport enterprises 2011-Oct 2017



Singapore-based on-demand ride service Grab secured $2bn from SoftBank and its China-based counterpart Didi Chuxing as the two investors continue to expand their influence in the world's ride-hailing sector. The funding was raised at $6bn post-money, double the valuation at which the company had last raised funding. Founded in 2012, Grab runs an app-based service spanning 65 cities in seven Southeast Asian countries that enables users to order lifts through private cars, motorcycles, taxis or carpooling, equating to an average of almost 3 million rides a day.

France-based multinational aerospace and defence corporation Airbus participated in $1.2bn round raised by US-based satellite operator OneWeb. SoftBank invested $1bn of the total capital. The round included several other corporates, all existing investors in the company: mobile chipmaker Qualcomm, beverage producer Coca-Cola, conglomerates Virgin Group and Bharti Enterprises, cable and internet service provider Totalplay, and satellite services companies Hughes Network Systems and Intelsat. Founded in 2012, OneWeb is building a network of 720 low-earth-orbit satellites to provide internet coverage across the world.

E-commerce group Alibaba co-led a $700m round series E round for China-based bicycle-sharing service Ofo. The round also included Didi Chuxing. Founded in 2014, Ofo operates a service that enables users to rent bikes using a mobile app. It has more than 100 million registered users across 150 cities, and manages roughly 2 million transactions a day. Earlier Ofo had closed $450m in series D capital from a consortium that included Didi Chuxing. The round, led by investment firm DST, valued Ofo at over $1bn.

China-based electric vehicle developer Xiaopeng Motors raised RMB2.2bn ($324m) in a series B round led by on-demand chauffeured travel platform UCar. Founded in 2014, Xiaopeng is working on and all-electric sports utility vehicle

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

Company	Location	Sector	Round	Size	Investors
Meituan-Dianping	China	Consumer	–	$4bn	Canada Pension Plan Investment Board | China-UAE Investment Cooperation Fund | Coatue | GIC | International Data Group | Priceline | Sequoia Capital | Tencent | Tiger Global Management | TrustBridge Partners
Grab	Singapore	Transport	E and beyond	$2bn	Didi Chuxing | SoftBank
OneWeb	US	Telecoms	–	$1.2bn	Airbus SAS | Bharti Airtel | Coca-Cola | Hughes Network Systems | Intelsat | Qualcomm | SoftBank | Totalplay | Virgin
Ofo	China	Transport	E and beyond	$700m	Alibaba | Citic | Didi Chuxing | DST System | Hony Capital
Ofo	China	Transport	D	$450m	Citic | Coatue | Didi Chuxing | DST System | Matrix Partners
Xiaopeng Motors	China	Transport	B	$324m	UCar | undisclosed strategic investors
Via	US	Transport	–	$250m	Daimler | undisclosed strategic investors
Renrenche	China	Transport	Stake purchase	$200m	Didi Chuxing
Nauto	US	Transport	B	$159m	Allianz | BMW | Draper Nexus | General Motors | Greylock Partners | Playground Global | SoftBank | Toyota
Proterra	US	Transport	–	$140m	88 Green Ventures | Exelon | General Motors | Kleiner Perkins Caufield & Byers | Middle East Venture Partners | Obvious | Tao Venture Capital Partners | undisclosed strategic investors
Chargepoint	US	Energy	E and beyond	$125m	BMW | Braemar | Linse Capital | Rho Capital Partners | Siemens

SECTOR FOCUS

Top 10 investments in transport enterprises over the past year

Company	Location	Round type	Size	Investors
Didi Chuxing	China	–	$5.5bn	China Merchants Bank | Silver Lake | SoftBank
Grab	Singapore	E and beyond	$2bn	Didi Chuxing | SoftBank
Go-Jek	Indonesia	–	$1.2bn	Tencent | undisclosed investors
Ola	India	–	$1.1bn	RNT Capital | SoftBank | Tencent | undisclosed investors
Lyft	US	E and beyond	$1bn	Alphabet | CapitalG
Ofo	China	E and beyond	$700m	Alibaba | Citic | Didi Chuxing | DST System | Hony Capital
Mobike	China	E and beyond	$600m	Bocom International | Farallon Capital Management | Hillhouse Capital Management | ICBC International | Sequoia Capital | Tencent | TPG
Lyft	US	E and beyond	$600m	AllianceBernstein | Baillie Gifford | Janus Capital Group | KKR | PSP Investments | Rakuten
Yixin Group	China	–	$580m	Bitauto | China Orient AMC International | Tencent | Wei Wang
Uxin	China	–	$500m	China Vision Capital | Focus Media | Hillhouse Capital Management | Huasheng Capital | Jeneration Capital | KKR | Tiger Global Management | TPG | Warburg Pincus

capable of being mass produced quickly, and is looking to begin commercial manufacturing.

US-based mass transit service Via obtained a strategic investment from a consortium led by Daimler, estimated to be worth about $250m. The figure includes a $50m commitment from Daimler's Mercedes-Benz Vans subsidiary towards the creation of a Netherlands-based joint venture that will operate an own-brand and licensed service across European cities. Founded in 2012, Via operates a shuttle-based carpooling service that it provides both directly and through licensing partnerships with other public transport providers, such as rail company Deutsche Bahn-owned public transport operator Arriva.

US-based autonomous driving technology developer Nauto completed a $159m series B round, which was co-led by a subsidiary of SoftBank, and venture capital firm Greylock Partners. Carmakers BMW, GM and Toyota also invested, through their BMW i Ventures, General Motors Ventures and Toyota AI Ventures units respectively, as did Allianz Ventures, the corporate venturing arm of insurance firm Allianz. Nauto develops an artificial intelligence-powered data platform that prevents crashes and helps users drive more safely.

US-based electric bus manufacturer Proterra secured $140m from investors including GM and energy companies Exelon and Edison Energy, in a "series 5" round. GM and Exelon invested through GM Ventures and Constellation Technology Ventures respectively, but the round was led by an undisclosed participant that provided $40m. Proterra produces electric buses.

US-based electric vehicle charging network operator ChargePoint closed a series G round led by Daimler at $125m, after raising an additional $19m from investors including industrial product manufacturer Siemens. BMW i Ventures also took part in the round. ChargePoint runs a network of almost 38,000 chargers working with electric cars, buses and trucks, and serves more than 7,000 corporate and public customers.

There were other interesting deals in emerging transport-focused companies backed by corporate investors from other sectors.

SoftBank provided $5bn in a $5.5bn round that raised by Didi Chuxing, making Didi Chuxing the second most valuable private company in China, and this may presage a drive to compete with US-based rival Uber. Didi Chuxing operates an on-demand ride-ordering service with the largest market share in China, having seen off its only notable rival, Uber's Chinese subsidiary, with a $7bn acquisition in 2016.

Tencent led a $1.2bn funding round for Indonesia-based on-demand ride and delivery service provider Go-Jek. The deal, Tencent's first venture capital investment in Indonesia, valued Go-Jek at $3bn post-money. Go-Jek initially focused on a ride-hailing service centred on motorcycle taxis called ojeks, but has since expanded to four-wheel vehicles and now oversees a network of 200,000 drivers across 25 Indonesian cities.

India-based on-demand ride provider Ola raised $1.1bn in a funding round led by Tencent. SoftBank also participated in the round, as did undisclosed US-based investors. Ola is in talks with additional parties in a bid to add another $1bn. Founded in 2011 as Olacabs, Ola has built an app-based ride-hailing service ranging from luxury cars and taxis to auto rickshaws and shuttle buses, and the company operates in 110 Indian cities.

US-based ride-hailing platform Lyft raised $1bn in a funding round led by CapitalG, the growth-stage investment arm of internet and technology conglomerate Alphabet. Lyft did not name other investors in the round, which valued it at $11bn. The deal came shortly after Lyft entered talks with investment banks about a possible initial public offering in 2018. Lyft operates an on-demand ride-hailing platform that is available in 300 cities across the US. It has completed more than 500 million rides.

Lyft had closed a $600m series G round earlier, featuring e-commerce firm Rakuten, that valued it at $7.5bn. The round included investment firm KKR's Next Generation Technology Fund, investment firms Janus Capital Group and Baillie Gifford, investment and research management firm AllianceBernstein and pension fund PSP Investments.

SECTOR FOCUS

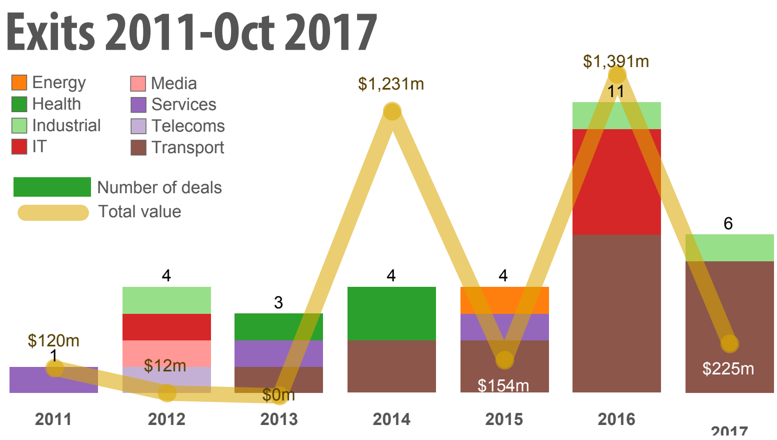
Tencent led a $600m round for China-based bicycle-rental platform Mobike that included financial services firm Bocom International and ICBC International. Mobike operates an app-based bike-rental service that was launched in Shanghai in April 2016 and has expanded rapidly since. The company launched in about 100 cities last year, including Singapore and the UK.

Investors including Tencent and automotive e-commerce firm Bitauto agreed to invest a total of up to RMB4bn in China-based online vehicle trading platform Yixin Group. The corporates were joined by various institutional investors. Yixin runs an online marketplace for new and used vehicles serving carmakers, vehicle dealers and automotive service providers as well as financing and insurance partners.

Uxin, a China-based used-vehicle marketplace, previously backed by internet company Baidu, raised $500m in a round featuring a fund owned by outdoor advertising specialist Focus Media, among a host of other investors. Uxin operates online platform Youxinpai, where consumers buy and sell used vehicles, as well as business-to-business vehicle marketplace Uxin Pai and a financing service for automotive purchases.

Exits

Corporate venturers from the transport sector completed six exits over the past year – four acquisitions and two mergers. On a calendar year-to-year basis, GCV Analytics tracked 11 exits in 2016, a sharp and significant increase from the four transactions recorded in 2015. The estimated exited capital also surged to $1.39bn in 2016, up from $154m in 2015.



US-based ride-hailing service Uber agreed to invest $225m in a company that will merge its operations in Russia and some neighbouring countries with that of Russia-based internet company Yandex. The entity will consist of Uber's on-demand ride and food delivery assets in 21 cities across Russia, Azerbaijan, Belarus and Kazakhstan and Yandex's analogous subsidiary, Yandex Taxi, which was founded in 2011 and which is also present in six countries including Armenia and Georgia. Uber will own a 36.6% stake in the company, valued at $3.73bn, and will have three of its seven board seats.

Chemical supplier Nippon Shokubai agreed to acquire US-based chemical producer Sirrus for an undisclosed sum, allowing General Motors and diversified conglomerate Mitsui to exit. Founded in 2009 as Bioformix, Sirrus makes monomers and derivatives that enhance performance and cut energy consumption in advanced manufacturing and assembly processes.

Germany-based ride-sharing service provider CleverShuttle was acquired by media group Madsack Mediengruppe, providing an exit to Daimler and Deutsche Bahn. Madsack acquired the majority stake through its publishing subsidiary Leipziger Verlags und Druckereigesellschaft. Founded in 2014, CleverShuttle enables users to hail a vehicle through an app and join a car with other passengers travelling a similar route. The company focuses on the environmental advantages of ride-sharing, operating electric, hydrogen and hybrid vehicles.

Top exits by transport sector corporate investors over the past year

Company	Location	Sector	Exit type	Acquirer	Exit size	Investors
Yandex Taxi	Russia	Transport	Merger	–	$225m	Uber
Sirrus	US	Industrial	Acquisition	Nippon Shokubai	–	Arsenal Venture Partners | Braemar | General Motors | Mitsui
CleverShuttle	Germany	Transport	Acquisition	Madsack Mediengruppe	–	Daimler | Deutsche Bahn | EvoBus | TED Beteiligungs | Unger
Flinc	Germany	Transport	Acquisition	Daimler	–	Deutsche Bahn | EcoMobility Ventures | General Motors | ISB Ventures | KfW
Hellobike	China	Transport	Merger	Youon Bike	–	Ant Financial | Chengwei Capital | GGV Capital | WM Motor
Beepi	US	Transport	Wound down	–	-	Comerica Bank | DST System | Foundation Capital | Redpoint Ventures | SAIC Motor | Sherpa Ventures | Silicon Valley Bank | angel investors

Daimler acquired Germany-based ride-sharing platform Flinc for an undisclosed sum, giving an exit to investors including Deutsche Bahn and General Motors. Founded in 2010, Flinc operates a peer-to-peer ride-sharing platform with more than 500,000 registered users. The offering is available as an app and website, and is integrated into other services, such as company apps that enable colleagues to carpool.

Hellobike, a China-based bicycle sharing service backed by electric vehicle producer WM Motor, agreed to merge with its Shanghai-listed peer Youon Bike. Financial terms of the merger were not disclosed. Hellobike and Youon will collaborate with Ant Financial, the financial services affiliate of Alibaba that holds shares in Youon, in the areas of bike rental, electric bicycle sharing and car sharing.

Beepi, a US-based online vehicle marketplace that had raised about $150m in funding from investors including carmaker SAIC Motor, wound down its business. Founded in 2013, Beepi operated an online peer-to-peer marketplace for used cars. It had grown quickly and in September 2015 closed a $70m round led by China-based SAIC that valued it at $500m.

We also reported exits from emerging transport enterprises that involved corporate investors from other sectors as well, notably from the IT, electronics and industrial sectors. One was a record-breaking acquisition.

The largest acquisition so far recorded of a company previously backed by corporate investors was completed by semiconductor manufacturer Intel, which acquired Israel and US-based developer of vision driver assistance systems Mobileye for $15.3bn by purchasing 84% of its outstanding ordinary shares. Mobileye was previously backed by financial firms Goldman Sachs and Morgan Stanley in the 2000s as well as by car-rental services Enterprise Rent-a-Car and financial firm Fidelity in 2013 before it floated on the New York Stock Exchange in 2014. Founded in 1999, Mobileye develops a collision avoidance system with computer vision and machine learning, data analysis, localisation and mapping for advanced driver assistance systems and autonomous driving.

Nutonomy, a US-based self-driving technology producer backed by South Korea-based electronics producer Samsung, agreed to a $450m acquisition by automotive components manufacturer Delphi Automotive. Delphi agreed to pay $400m upfront and, with earn-outs, the purchase price totalled about $450m. Founded in 2013, Nutonomy is working on software facilitating large fleets of autonomous ride-hailing vehicles by enhancing image perception, mapping and localisation, motion planning and decision-making.

Top 10 exits from transport enterprises over the past year

Company	Location	Exit type	Acquirer	Size	Investors
Mobileye	Israel	Acquisition	Intel	$15.3bn	Undisclosed strategic investors
Nutonomy	US	Acquisition	Delphi Automotive	$450m	EDBI | Fontinalis Partners | Highland Capital Partners | Samsung | Signal Ventures | private investors
Yandex Taxi	Russia	Merger		$225m	Uber
Automatic Labs	US	Acquisition	SiriusXM	$100m	Amicus Capital | Anthemis Group | CDK Global | Comcast | RPM Ventures | USAA | Y Combinator | angel investors
Youon Bike	China	IPO		$87m	Ant Financial | International Data Group | Shenzhen Capital Group
Torqeedo	Germany	Acquisition	Deutz	–	BayBG | Brose Trust | Extorel | Robert Bosch | WHEB Partners
CloudMade	US	Acquisition	Valeo	–	Intel
Beepi	US	Wound down		–	Comerica Bank | DST System | Foundation Capital | Redpoint Ventures | SAIC Motor | Sherpa Ventures | Silicon Valley Bank | angel investors
CleverShuttle	Germany	Acquisition	Madsack Mediengruppe	–	Daimler | Deutsche Bahn | EvoBus | TED Beteiligungs | Unger
Luxe	US	Acquisition	Volvo	–	Alphabet | Box Group | Data Collective | Eniac Ventures | Foundation Capital | Hertz | Lightspeed Venture Partners | Redpoint Ventures | Rothenberg Ventures | Sherpa Ventures | Slow Ventures | Upfront Ventures | VenRock

Engine manufacturer Deutz purchased Germany-based electric drive developer Torqeedo for an undisclosed sum, providing exits to industrial product manufacturer Robert Bosch and car parts supplier Brose. Deutz plans to incorporate Torqeedo's R&D expertise into its electric and hybrid motoring division. Founded in 2005, Torqeedo manufactures electric and hybrid-powered propulsion motors for watercraft.

Mass media group Comcast exited US-based connected car technology developer Automatic Labs in an acquisition by online radio company SiriusXM, which was reported to be above $100m in size. Automatic has created a connected car adapter that can connect to a user's smartphone, giving them in-car access to apps providing services such as fuel monitoring, identification of engine trouble and the capability to alert emergency response about accident sites.

China-based bicycle-sharing company Youon Bike raised $87m in an IPO in Shanghai that provided an exit to Ant Financial. The company's shares were priced at RMB26.85, and rose as high as RMB38.66 on the first day of trading. Youon is the first China-based on-demand bicycle service provider to go public. Founded in 2010, it began life as an operator of government-funded bicycle rentals in small cities and towns across China. The company expanded into dockless bike-sharing in 2016.

France-headquartered car parts provider Valeo acquired a 50% stake in CloudMade, a US-based developer of a machine-learning mapping platform for connected cars. CloudMade was one of six companies in which Intel Capital had invested an aggregate of $26m by 2011. Founded in 2007, CloudMade develops machine learning and content aggregation from multiple sources for connected cars.

Carmaker Volvo paid an undisclosed sum to acquire the assets of Luxe, a US-based on-demand valet parking service backed by car rental firm Hertz and Alphabet. Founded in 2014, Luxe operated an app-based service for organising valet parking as well as a range of other services including washing, refuelling and oil changes.

Funds

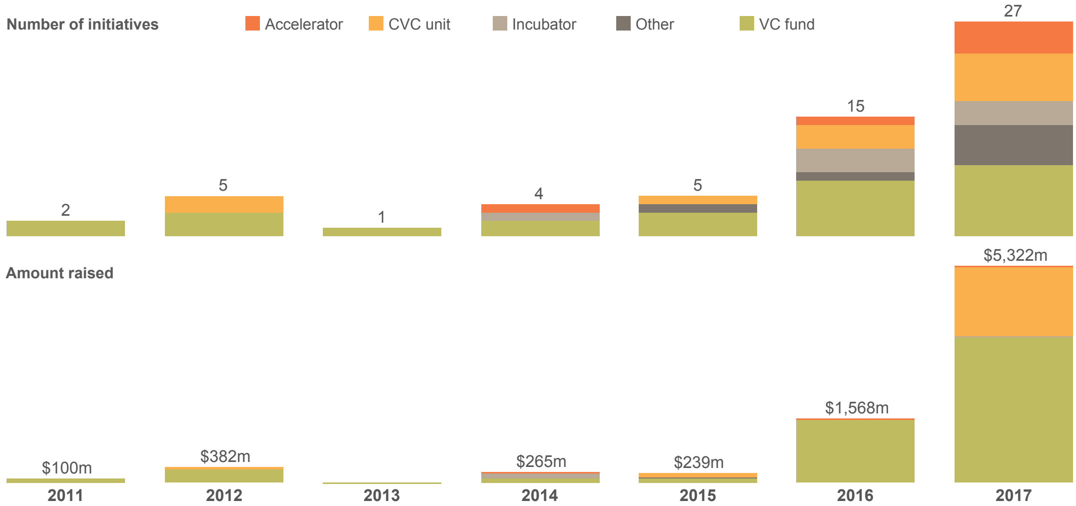
Between November 2016 and October 2017, corporate venturers and corporate-backed VC firms investing in the transport sector secured over $5.58bn in capital through 30 funding initiatives, which included nine corporate-backed VC funds, six new venturing units, six accelerators and three incubators.

On a calendar year-to-year basis, funding initiatives registered a significant increase in initiative count – from five in 2015 to 15 in 2016, while total capital surged from $239m to $1.57bn over the same period. Both the number of initiatives and total fund raised are increasing rapidly – by the end of October 2017, Global Corporate Venturing had reported 27 initiatives worth an estimated $5.32bn.

Baidu announced RMB10bn investment vehicle Apollo Fund, aimed at autonomous driving. The fund is set to back 100 self-driving car projects, seeking opportunities across the globe in the areas of software, hardware, vertical services and data providers. The fund draws its name from Baidu's open-source autonomous driving platform Apollo, which has attracted 70 industry partners so far, including car manufacturers such as Hyundai. Portfolio startups will gain access to the Apollo platform and the ecosystem of partners.

China-based manufacturing services provider Foxconn partnered venture capital group IDG Capital, investment subsidiary of media and research company International Data Group, to form a RMB10bn investment fund focusing on transport technology. Foxconn and IDG will supply 10% of the capital as well as experts to run the fund. They have been in talks with state-backed funds, financial institutions and private investors concerning further backing. The unnamed fund will

Transport sector funding initiatives 2011-Oct 2017



SECTOR FOCUS

Top 10 transport funding initiatives over the past year

Funding initiative	Type	Funds raised	Location	Focus
Apollo Fund	VC fund	$1.5bn	China	100 self-driving car projects worldwide over the next three years
Foxconn-IDG Transport Fund	VC fund	$1.5bn	China	Targeting a range of technologies including autonomous driving software and advanced batteries – China, Japan and US
Unnamed UCar unit	CVC unit	$1.47bn	China	Automotive
Breakthrough Energy Ventures	VC fund	$1bn	US	Commercialisation of research that helps reduce greenhouse emissions
Samsung Automotive Innovation Fund	VC fund	$300m	South Korea	Strategic investments in companies developing connected and autonomous vehicle products
Intel Autonomous Car Fund	VC fund	$250m	US	Autonomous driving technology
Ping An Innovation Centre	VC fund	$157m	China	Fintech, innovative internet, mobile and data technologies, customer-distribution channels, healthcare, automotive services
ST Engineering Ventures	CVC unit	$150m	Singapore	Sectors relevant to ST's long-term growth – robotics, autonomous technology, data analytics, cybersecurity
Autotech Ventures	VC fund	$120m	US	Startups developing technologies for mobility services and connected, autonomous and energy-efficient vehicles
YI Capital Fund I	VC fund	$110m	China	Industrial internet startups in the accommodation, transport and financial services industries

target a range of technologies including autonomous driving software and advanced batteries, and will invest in companies based in China, Japan and the US.

UCar formed a RMB10bn strategic investment fund, which, according to chairman and CEO Lu Zhengyao, will cover the entire automotive value chain. Although its competitors include ride-hailing company Didi Chuxing, UCar operates through a different model, largely using an in-house fleet of cars, and an investment in Xiaopeng could herald a new source for its vehicles.

A group of executives and entrepreneurs set up a clean energy investment fund – Breakthrough Energy Ventures (BEV) – which will collaborate with corporate partners. Bill Gates, co-founder of software provider Microsoft, is chairman of the fund and one of 20 individuals who have agreed to provide more than $1bn in capital to make early and growth-stage investments. The consortium includes Jack Ma, chairman of Alibaba; Mukesh Ambani, chairman of conglomerate Reliance Industries; Hasso Plattner, co-founder of software producer SAP; Jeff Bezos, founder of e-commerce firm Amazon; Richard Branson, founder of Virgin; and Masayoshi Son, CEO of telecoms group SoftBank. BEV will focus on the commercialisation of research that helps reduce greenhouse emissions in technologies such as electricity generation and storage, transportation, industrial processes and agriculture.

Samsung launched the $300m Samsung Automotive Innovation Fund. The fund will make strategic investments in companies developing connected and autonomous vehicle products in areas such as smart sensors, machine vision, artificial intelligence, high-performance computing, connectivity, automotive safety, security and privacy technology. The unit will bolster Samsung's own technology efforts in the sector. It has received licences to test its autonomous driving software and hardware on the road in California and Korea.

Brian Krzanich, chief executive of Intel, announced that the company's corporate venturing unit, Intel Capital, intended to invest $250m in autonomous driving technology over the next two years. Those investments will help fuel improvements in automotive connectivity, communication, context awareness, deep learning, security and safety, by using internet-of-things technology and data to improve safety, mobility and efficiency. Intel Capital first committed $100m to its Connected Car Fund in 2012.

Ping An Insurance, a China-based insurer, set up a RMB1bn corporate venturing fund to support financial services technologies. The Ping An Innovation Centre is the first fund established by a major financial institution in China. Ping An is looking to boost its core businesses by investing more in innovative technologies from the internet, mobile and data as well as customer-distribution channels and healthcare and automotive-related services.

Singapore-based integrated engineering and industrial product manufacturer ST Engineering launched corporate venturing subsidiary ST Engineering Ventures armed with $150m. The unit will seek opportunities in sectors relevant to ST's long-term growth, such as robotics, autonomous technology, data analytics and cybersecurity, and will initially operate out of offices in Singapore, Israel and the US. The initiative is open both to internal engineers and external teams, based either locally or abroad.

China-based venture capital firm YI Capital closed a first fund at RMB800m after securing home appliance manufacturer Joyoung as a limited partner. Joyoung was joined by national industrial guidance fund Zhongjin Qiyuan and Citic Industrial Fund of Funds, part of alternative investment management firm Citic, as well as additional publicly-listed companies and state-owned guidance funds. In particular, the firm is looking to back industrial internet startups that will participate in the accommodation, transport and financial services industries as well as those providing other traditionally offline-based services.

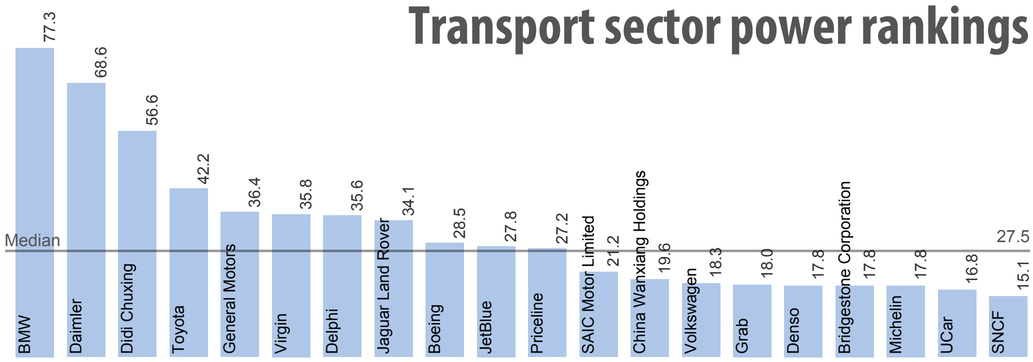
People

Airbus Group shook up its corporate venturing leadership and appointed François Auque and Thomas d'Halluin to lead the European and US venture investment activities respectively. Their appointment followed the departure of Tim Dombrowski, CEO of Airbus Ventures, and his partner, Heikki Mäkijärvi. Auque was previously CEO of Airbus Group's defence and space division in France and executive vice-president of space systems. D'Halluin was formerly chief operating officer of Airbus Ventures having earlier been chief financial officer.

Several additional hires were made by Airbus in North America and Europe, including Maryanna Saenko, based in Silicon Valley, who had previously worked at Lux Research's autonomous systems group; Anabelle Oliveira, based in Paris, France, who had worked with Auque at Airbus defence and space; and Matthieu Repellin, also based in Paris, who spent 13 years in the semiconductor industry at STMicroelectronics before joining Airbus in 2013 and latterly working at its A3 innovation centre. Dylan Gale, an associate at Airbus Ventures, joined cable group Comast's corporate venturing team to cover "augmented and virtual reality, the internet of things and frontier technologies", as he stated on his LinkedIn profile; Later, Saenko left Airbus Ventures to take a senior associate role at VC firm DFJ.

Sherry House, vice-president for corporate development covering mergers and acquisitions and corporate venture capital at car parts maker Visteon, joined Alphabet's self-driving car project Waymo. She is now director and head of corporate finance at Waymo covering corporate development. Over her career, encompassing running the CVC services business and setting up the Silicon Valley investment banking office and at consultancy firm Deloitte, House has executed 65 transactions. ◆

Transport sector power rankings



Interview: JetBlue Technology Ventures, the magic sauce of industry and investment expertise

Kaloyan Andonov spoke to Bonny Simi, president of JetBlue Technology Ventures and an active airline captain. Simi talked about the winning team formula of her venturing firm, how people will be flying on electric aircraft by 2025 and disruptive trends in travel tech.

You are an active pilot. How does your passion for flying translate into the world of venture investing?

There are two things from my previous roles that tie into my venturing role. On the one hand, I am an active airline captain for JetBlue Airways – actually I flew 200 people from JFK to Charlotte and back over the weekend. Because I have been in the aviation industry for 30 years, I can bring a lot to the table for startups. I understand the viability of a given technology.

The other part of my background is that I was the head of talent for JetBlue. That role prepared me the most for my position at JetBlue Technology Ventures. I oversaw all the hiring for the airline for five years. My team and I have hired probably around 15,000 new JetBlue crewmembers, from gate agents and pilots to IT and commercial executives, over that period. So one develops a keen eye for talent. When investing in early-stage startups, it is more about the who than the what. In other words, understanding the person so we can invest in the person.

In that sense, I would like to stress that JetBlue Technology Ventures would not be successful without our team. I do want to highlight Raj Singh. He is the managing director who oversees the investment side. While I oversee the entire firm, my focus is mostly on the outside and bringing in dealflow as well as introducing startups to potential investors and partners as well as ensuring we are supporting the future vision of JetBlue.

The magic sauce that makes us successful is having one person understanding the industry very deeply and another monitoring the investment side. In cases where you have a CVC led by someone with a VC background only, it can be challenging for that person to understand the corporate side. If it is led by someone with only industry background but no investment experience, it is difficult for that person to truly understand the venturing world. The biggest lesson from us as a corporate venturing arm is to make sure you have both – the corporate and the venture capital.

What do you look for in startup founders?

It is very rare that we would invest in a company with just one founder, so it is the founding team that is really important. So, we look for a good mix of people with deep technical background, the chief technology officer type of person, and someone with a vision, the CEO type of person. We need a team who are together able to think of the bigger picture – we want to see a path to at least $100m in revenue – and we also want them to have the team to execute on the vision.

JetBlue Technology Ventures was founded fairly recently, in 2016, and you have started building a portfolio. What are the major considerations in your investment thesis?

We consider investments at the intersection of travel and technology, in a broad sense, extending beyond airlines. We are currently focusing on five themes. The first are startups improving the customer journey – from the first moment a person thinks about travelling until the moment they come back home and say: "Wow! That was amazing!"

Another area of interest is enterprise software that allows us to provide great services – everything spanning from omni-channel communications through AI-powered assistance to the future-of-work technologies at a large company like JetBlue. Another area we look at is maintenance and operations, which encompasses anything that will help improve or create more efficiencies in our operations – for example, predictive maintenance and 3D printing, weather or air traffic delay predictions.

We also look at revenue management fintech applications as well as loyalty programs. We also invest in regional transportation technologies, which touches on the question: "Will airlines exist in the future?" We believe they will, though likely more for long-haul travel. We believe the regional transportation sector – 1,000 miles or less – is ripe for disruption with everything from electric "jets" to vertical take-off and landing (VTOL) flying cars.

What disruptive trends or developments do you see in your areas of interest?

We are looking at specific technologies rapidly disrupting the travel space – artificial intelligence, augmented reality, blockchain, the internet of things, 3D printing, predictive analytics and electric propulsion. The last is very interesting. Just as electric propulsion is disrupting automobiles, it is doing the same with VTOL for helicopters and other regional aircraft. You will be flying on electric aircraft by 2025, if not sooner.

We also see interesting applications of blockchain in distribution. There are many intermediaries in selling airline tickets and hotel bookings, and blockchain could reduce these intermediaries the same way it is now starting to disrupt the middle man in banks when it comes to transferring money.

Another disruptive trend is using machine learning to process massive datasets, both on the operational side, such as predictive maintenance, and on the revenue side for dynamic pricing.

And then we see augmented reality technologies being used in manufacturing and also for training purposes. While manufacturing does not apply to us directly, we do provide extensive training.

As for 3D printing applications, we are particularly focused on printing interior aircraft parts. If you think about your tray table or seat, these are easily breakable elements and if we have way to 3D-print them and replace them quickly, it does make a big difference in terms of efficiency.

Are JetBlue Technology Ventures' investment goals primarily strategic, financial or a mixture?

We are definitely a strategic investor. That said, there is nothing strategic about losing money, so we very carefully screen investments to ensure that there will be some level of return. However, the focus is strategic, as travel is a space that is being rapidly disrupted. We always take minority stakes and provide strategic support to the startups. We always take an observer seat, so we know what is going on in our portfolio companies, which literally gives us a seat at the table for the future of travel.

In what ways do you help your portfolio companies?

Every startup is different and has its unique needs. Some need expertise in the airline and hotel space, which we bring – a member of our team understands the hotel space very well. Another example of expertise is regulation and working with industry. We have experience working very closely with the US Federal Aviation Administration on many matters including aircraft certification, safety reviews, operations and more, so we can help our startups understand and work with the FAA.

Sometimes, startups need help with public relations and marketing, so we bring some top-name firms to do it for them. Sometimes, of course, we become the customer of those startups. Other startups need that we vouch for them in subsequent rounds. Travel tech is a space that is not readily understood by traditional VCs, so we become someone that can validate the investment.

In some cases, we provide mentoring to first-time founders and sometimes even give them free office space in our lab in Silicon Valley. As a matter of fact, we have startups that work from there as their home office. And finally, probably the most valuable thing we can offer is our network with other airlines and hospitality companies around the world and connecting the startups with them.

> "Startups need help with public relations and marketing, so we bring some top-name firms to do it for them"

With the rise of technologies like drones, some believe we may have flying cars sooner than autonomous cars. What is your stance on the investment potential and opportunities in the urban air mobility space?

I would say we are very bullish in that space. We believe that these new vehicles will be piloted much like for cars, where there is autonomy but you still need a driver. We anticipate it will be many years before there will be fully autonomous airborne vehicles in passenger service. As for flying cars, what prevents them from becoming commonplace right now is that they are not practical, because they are expensive, burn a lot of gas, and are noisy. However, once you switch over to electrical, they can be quiet and very cost-efficient. The power density ratio in batteries, within the next year or two, will get to the point of powering up a four to six-passenger vehicle that can fly for 100 to 200 miles. So it is all about the batteries and when the batteries will be ready. And we believe the necessary formula will be there in the next few years.

Are you currently investing in companies developing batteries?

No, but we are observing this space very closely. We do not do a lot of hardware investments but it is a space we spend a lot of time looking at. Our unit is not just about investments. We do market intelligence on the industry for JetBlue, so we know what is going on.

Your most recent publicly disclosed deal was in Skyhour, an online gifting platform for travel. Are there any other interesting deals down the pipeline to be publicised soon?

Skyhour sits within the fintech and revenue side of focus. It is actually a common-sense thing. If you want to gift Starbucks coffee to someone, you give them a Starbucks gift card. And the problem with flight gift cards is somewhat annoying, as people lose them. So Skyhour provides a way of gifting travel online, a piece of the flight and not the whole thing. Then flight hours can be accumulated across many gifters, and redeemed when sufficient hours are in an account.

It is a very seamless experience for people to book travel that way. It is a fascinating e-gifting of travel that has never been done. We are curious as to how it will play out for us strategically. And this startup is allowing us to do that as an external R&D, and if it works out well, we can become a direct customer.

You are one of the still few women leading a corporate venturing unit. What do you think can be done to motivate more women to work in venturing?

It is incumbent on the entire industry to make sure that you have a diverse pool of candidates when a slot is available. I am not saying people should just go out and hire women. You need to hire the best candidate. However, you would be surprised how many amazing women there are out there who do not even get an interview.

So my plea to the industry is: when you have an opening, go out and do the hard work to find at least one female candidate. And then let the slate play out as it is. If the best candidate is a man, then hire the man. You may be surprised how many times the best candidate is a woman. ◆

Interview: Daimler's case for venturing

Kaloyan Andonov spoke to Christian Herrmann, director of M&A Technology and Venture at Germany-based car maker Daimler, about the four main areas of interest in the automotive realm – connected, autonomous, shared and e-mobility (Case), and about Daimler's approach to venture investings.

What are the major considerations in your investment thesis?

We are investing in companies which have the potential to disrupt the automotive industry or single parts of its current value chain. All our investments have the potential to significantly impact our industry. We are focusing on our Case strategy and its four pillars – connected, autonomous, shared and e-mobility.

On top of that, we are identifying businesses which have the same potential in supporting and service functions, like financial services. One example is our investment and cooperation with AutoGravity in production – robotics. On the one hand, our industry sees some challenges. On the other, these trends offer a huge potential for gaining sales and revenue.

What are your observations on trends and developments in your areas of focus? What is the disruptive potential of each one?

The key areas are Case. All of these elements have the potential to disrupt our industry on a standalone basis. All of them combined will create a change for the industry which we have never seen before. However, there can be different specific use cases for passenger cars and trucks, while both are based on similar technologies.

In connected cars, we see very interesting developments in using data created by and used to connect vehicles, be it to connect them with other vehicles or other devices. We expect a lot more specific business models to emerge out of the opportunities in tapping into the location and technical data of vehicles.

In the autonomous space, the trend is obvious. All original equipment manufacturers and a lot of startups are working toward fully autonomous driving. We see both – startups only focusing on sensors, like Lidars (light detection and ranging) and companies trying to come up with full autonomous solutions or even full vehicles, be it on the truck or passenger car side.

What about the shared space and electric vehicles?

The shared space is one area where we invested very early. On-demand or shared mobility is one of the areas which has already disrupted the taxi industry in some regions of the world and might have the potential to disrupt the whole automotive industry.

However, potential decline in car ownership might not necessarily go along with reduced number of vehicles. Changed consumer behaviour – for example, moving from public transport to on-demand services – could also benefit the automotive industry. We feel very well prepared with our activities. Our portfolio company Mytaxi is the ride-hailing market leader in Europe. It is, by the way, also a good example of how our portfolio can develop.

It started as a minority venture investment at a time when the German ride-hailing space was small and, in the meantime, it is a controlled unit with significant strategic importance for Daimler, being the market leader in the European ride-hailing sector and one of the most important businesses of Daimler's mobility activities. If you think about combining autonomous connected vehicles with a ride-sharing service, this becomes very relevant.

As for the electric, this is one of our key areas. We launched a new brand family – EQ – and will introduce a set of new electric vehicles in the market in the coming years. We partake in investments in relevant companies which can support this, be it on the charging side, like Chargepoint, or on the battery or cell side, like Storedot.

You are the head of M&A technology and venture activities at Daimler. What are the advantages and challenges of combining VC investments with M&A investments?

We have chosen to combine both venture investments and M&A activities for all technology-related projects for all our divisions under one mandate. This ensures, on the one hand, that all our venture investments are fully aligned with Daimler's overall strategy and, on the other, that the knowledge the team creates through the venture activities is being used for strategic acquisitions too. By being very close to all corporate functions we can also ensure that we bring operational and strategic benefit to our portfolio companies, whether by opening doors within Daimler or by nominating operational experts as board members or observers.

With which investors do you normally seek to co-invest and how do you source your VC dealflow?

We are very open and do co-investments with both strategic and financial investors. We have different sources. Our technical departments and strategy teams keep an eye on the market and what is going on in their area of responsibility. Here we get first inputs on which company might be a good fit. Moreover, we do specific screenings in certain areas where the subject matter experts feel they would need something on top. And we have partnerships with VC funds, incubator programs as well as trend scouts, and are working closely together with them. As well, we have launched a new website (*https://www.daimler.com/innovation/venture/*) where interested startups and VCs can find information about us and our contact data.)

Are Daimler's investment goals in VC rounds primarily strategic, primarily financial or a mixture of both?

It is a mixture of both. We always invest in a company with a potential strategic benefit for Daimler. We are not trying to be a better financial investor than financial VCs, but do not do investments that are not expected to yield any financial return.

How much do you aim to commit in VC rounds annually? What is the geographic scope of your investments?

We do not have a fixed commitment or goal – we do investments when it makes sense and finance them with Daimler's balance sheet. Therefore, we are completely stage-agnostic. Also in terms of regional focus, we are active worldwide, much like Daimler. For example, we have invested already in VC rounds not only in the US, Europe and China, but also in Israel.

"We do not have a fixed commitment or goal – we do investments when it makes sense"

Your most recent publically disclosed deal was in Volocopter, which develops helicopters for urban public transportation. What potential do you see in flying cars as commercially viable products and services in the near future?

We see a huge potential for urban applications. Volocoper fits perfectly into our Case strategy. Based on a quiet zero-emission drive system with high security levels, it combines connectivity functionalities with autonomous flight solutions and potential applications in a shared mobility ecosystem. Volocopter might create an urban air taxi service which could significantly change the options we have when travelling within the urban environment. Knowing that it still needs some time to solve regulations and technical feasibility, the dream of flying might be offered to a much broader group of users in the future.

What do you look for in a startup?

We are primarily focusing on the strategic fit in terms of business model or technology. On top of that, the team is very important. We need to feel the appetite and capabilities of the management to disrupt the industry and understand the benefit of cooperating together with Daimler. If this is not the case, we do not invest.

Do you support your portfolio companies from VC rounds in any way other than equity financing? Does Daimler seek partners and suppliers among them?

Yes, absolutely. Good companies would be able to get equity from other investors too. We are leveraging our organisational setup of being very close to other Daimler functions by providing access to Daimler or our ecosystem.

We always have a business unit acting as a business owner and sponsor to work with the company. If we do not have the willingness to do this with one of our units, we simply do not invest. This ensures that we always have an operational caretaker who works with the companies, be it to evaluate supply opportunities or other forms of cooperation. Sometimes we also create joint ventures on top of the investments, to jointly implement certain projects by combining our internal Daimler strengths and the strengths of the startup. ◆

GAULE'S QUESTION TIME

The challenge of sustaining a 45-year history of success

Andrew Gaule, left, talks to Tom Heyman, president of Johnson & Johnson Development Corporation

Tom Heyman was interviewed at the start of his unit's 45th anniversary year as a corporate venturing unit.

I started Johnson & Johnson in 1982 in their Janssen affiliate back in Belgium. I am a lawyer by training and I started in the law department of Janssen Pharmaceutica, primarily supporting licensing deals, distribution deals, joint venture deals and so on.

Then in 1990 I was asked to come to the US as vice-president of corporate development for Ortho, which was one of the other pharmaceutical companies within the Johnson & Johnson family of companies. Then in 1992 I was then asked to lead the business development group of the pharmaceutical group of Johnson & Johnson.

I have done that job for more than 20 years. In 2015 part of my role became head of the Johnson & Johnson Development Corporation, today known as JJDC.

So most of my career here, I have been involved in external innovation, primarily for the pharma group in my business development function, and now for the whole Johnson & Johnson Corporation in my role within JJDC.

In that external innovation role, I was fortunate to be involved in many of the licensing deals and acquisitions that were done by the pharmaceutical group, by Janssen Pharmaceutica as it is now called, since 1992. I have been involved in key acquisitions like Centocor and Alios BioPharma – all these companies and licensing deals that were important in building the portfolio of Janssen Pharmaceutica.

JJDC is one of the oldest and leading corporate venture capital funds. Introduce us to the fund and how it works.

JJDC is the oldest corporate venture group in healthcare. It was created 45 years ago and it is amazing to see what foresight people had – management and leadership – at that moment in time, to start off with this corporate venture group at a time when there were not that many such groups, especially in healthcare.

We are a separate legal entity reporting into Johnson & Johnson Innovation. We are involved in external innovation through equity investment in young companies that have products, technologies or assets that might be important to one of our key sectors in the future.

It is a small team. It is not a venture capital fund in the traditional sense of the word, so we do not have a certain amount of capital assigned to us. We have access to J&J's balance sheet, so we can make small to really large investments. Our investments range from a few hundred thousand dollars to sometimes more than $100m, depending on circumstances. So it is not a closed-end fund like you would see with a traditional venture capital group.

Our investors are based in the ecosystem where a lot of innovation is ongoing, so they are together with the people in our four innovation centres. We have investors in Boston, California, London and Shanghai. We have one person based in Tel Aviv because Israel is such an important source of innovation, especially in the medical device sector.

In what key technologies and business models are you looking for opportunities?

We are strategic investors in the first place. We are not financial investors. We do not invest in order to make money for Johnson & Johnson. We invest to build the pipeline and the portfolio of the sectors within J&J. So we look at opportunities and making investment in those companies that have assets or technologies or platforms that are of interest to one of the three sectors – medical devices, consumer or the pharmaceutical group.

So we work very closely with the three sectors to look at opportunities and to determine whether investments in those companies in the end would lead to either an acquisition or a licensing or distribution deal, anything that will help us to build the pipeline for Johnson & Johnson and its three sectors. That is the way we think about it.

Do you feel you are doing things that are further away from the business and may be quite disruptive to it? Do see your role as disruptor rather than just delivering what the business feels it needs?

That is something we are going through as we speak. I believe JJDC should start to play a more prominent role in looking at opportunities that do not easily fit today within the strategies of the sector, but are technologies that are potentially transformational towards the future. And trying to learn more about these technologies through an equity investment is something that is important.

But in the end it is something that has to be in areas that have at least some support by key leaders within Johnson & Johnson. We have learned, from the past and from our own mistakes, that we might want to make an investment because it is something that we like, but it may never find a home within Johnson & Johnson because no one is interested in bringing it in or they do not see the strategic intent at all – then it is financial, it is not strategic anymore. And these things, then, often do not give us the returns we would be looking for.

So investing in what we call white space – maybe that is not a great word, in potentially transformation technologies – is something I think is an important role we could play. But to me it is going to be very important that either the executive committee or the management committee of Johnson & Johnson support those kinds of investment, so at least they acknowledge that this is something that might be transformational for the future of Johnson & Johnson.

How do you support the ventures you invest in?

It depends on circumstances, of course. We are not sitting on the boards of every company in which we make an equity investment. It is part of the negotiation. It depends how much money we are putting in, it depends on the syndicate, it depends on the other investors. Obviously, if you make a very small investment, then they are not going to agree that you would be sitting on the board.

"Once we are on the board and have made that equity investment, we believe we have a fiduciary responsibility to ensure the company is successful"

But in those companies where we have a significant investment, we always ask to take a board seat, or a board seat and a seat on a scientific advisory board. We take that very seriously – once we are on the board and have made that equity investment, we believe we have a fiduciary responsibility to ensure the company is successful. So we will also bring in the resources of the corporation to help the company, if they have issues or questions with respect to manufacturing, with respect to regulatory environment with respect to pricing and reimbursement, with respect to access to retailers and things like that.

We will help them out and put them into contact with the specialists that we have within the three sectors of Johnson & Johnson, and help them to really develop their technologies better, more successfully, more efficiently, more effectively, because that, in the end, is in our own interests. In the end, we are making that investment because we believe there is something that might lead us to acquire this company, or might lead us to do a licensing deal with this company – we do it for our own self-interest also, not just for the company. It is also of interest to us because then we are putting that company into a better position for us to be able to onboard that.

Illustrate what you just described with one or two examples of recent investments?

We have made a very important investment in a company we have co-created with Verily, which is the healthcare arm of what is now called Alphabet, Google before that. We poured in a tremendous amount of money to build a new surgical robot. We are putting in not just money. We have seconded people. They are working very closely with our Ethicon affiliate to develop instruments that would work with the robot.

Another example is when we made an equity investment in a company based in California that is developing a completely new breast pump. Very innovative. We have put those people in touch with retailers, so that they understand what it takes to commercialise a consumer product like this one to the retail sector.

We have an investment in a company that is developing a medical device to treat heart failure. They have a product in the marketplace in Europe to treat hypertension. They have some issues with respect to reimbursement. We have brought in our people to help them out in thinking through how to improve that situation. We have brought in our people to help them out in developing their clinical trials and their protocols.

In all the companies in which we have a board seat, we will bring in, or we will offer at least, the resources of Johnson & Johnson. Those are the things that we do on an almost day-to-day basis, when we make an equity investment. ◆

You can listen to this and other interviews on a podcast, subscribe at gaulesqt.podomatic.com. Andrew Gaule supports innovation programs and collaborations with "innovative new value chains" in global organisations as CEO of Aimava. If you have interview ideas, email *andrew.gaule@aimava.com* or James Mawson *jmawson@globalcorporateventuring.com*

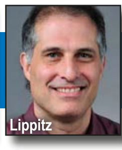
COMMENT

Selecting corporate venturing approaches

Scott Bowman and Peter Bryant, managing partners, and Michael Lippitz, principal, Clareo


Bowman


Bryant


Lippitz

Readers of Global Corporate Venturing are familiar with the rapid expansion and diversification of corporate venturing approaches. Companies have gone beyond sourcing innovation from suppliers and customers and investing in startups. Today, they are standing up accelerators and incubators, hosting hackathons and experimenting with equity crowdfunding, among other things.

This article reviews the recent evolution of corporate venturing approaches and provides guidance on which ones might be right for your situation.

In the early years of corporate venturing, companies tended to focus on accessing global technology. Companies in science-based industries such as electronics, telecoms, pharmaceuticals and chemicals were the primary players, along with a few large conglomerates seeking diversification and financial returns. With the boom in internet investment in the 1990s, a broader range of companies formed venturing units and invited small companies and inventors to submit ideas. There was also a rapid expansion of corporate entrepreneurship – the engagement and facilitation of internal corporate capabilities and entrepreneurial employees to enter new business areas, often in conjunction with externals.

By the mid-2000s, when the dust had settled from the tech-driven market crash of 2001, the disruptive potential of digital and information technologies became clear. Nimble online companies upended bookstores, newspapers, music labels, movie studios and others. Soon, companies that previously felt insulated by the large capital infrastructures or regulatory barriers – transportation, hotels, utilities, logistics – were under attack from companies that owned no assets, while startups went after lucrative niches of their value chains. FedEx today has to worry less about UPS than the dozens of small companies moving in to streamline and create new offerings in different parts of its value chain.

In their 2010 book The Global Brain, Satish Nambisan and Mohan Sawhney captured the current focus of corporate venturing. "A company can only be as innovative as the collective capacity of the people who make up its ecosystem." Competitiveness today increasingly derives from connecting to and orchestrating sources of information, building and maintaining reciprocal interdependent relationships with companies that have superior engagement with customers. Even erstwhile competitors have created multi-corporate venture capital portfolios aimed at collectively fostering an innovation ecosystem from which all can benefit. How do you decide which approach is the best fit for your company?

Corporate venturing approaches and options

One-size-fits-all is never appropriate for innovation, and corporate venturing is no different. Many executives aspire to innovate like Apple or Google, but few companies can or should. The table below summarises contemporary corporate venturing methods and different approaches within each method.

OBJECTIVE	APPROACHES
SOURCE OR CO-CREATE innovations for known problems or challenges	OPEN/COLLABORATIVE INNOVATION METHODS Go out to the crowd – challenge, hackathon, online IP market Bring the crowd in – embed with your teams Join entrepreneurs – embed yourself with them
GENERATE BUSINESS CONCEPTS around a core thesis	ACCELERATOR External – eg, hire TechStars Internal – host your own accelerator
FOSTER NEW BUSINESS CREATION around themes	INCUBATOR Join independent incubator Host incubator
PARTNER VCs OR ENTREPRENEURS to create custom new businesses focused on a particular challenge	STRATEGIC PARTNERSHIP (Alliance or JV with aligned firm) DESIGNER STARTUP
INVEST IN EXISTING STARTUP BUSINESSES in strategic focus areas, to create optionality	CORPORATE VENTURE CAPITAL Limited partner in a VC fund Equity crowdfunding Dedicated fund Multicorporate fund

The terms accelerator and incubator are sometimes used interchangeably. For our purposes, an accelerator is a discovery-oriented fast structured process for developing an initial business case and validation of market attractiveness. Incubators focus on helping early to mid-stage companies gain early traction, validating their solutions and proving out a revenue model on the path to scaling and commercialisation.

We find a five Cs framework useful for thinking about which corporate venturing approaches are appropriate for a particular organisation, and then for taking action – clarify, connect, commit, configure and collaborate.

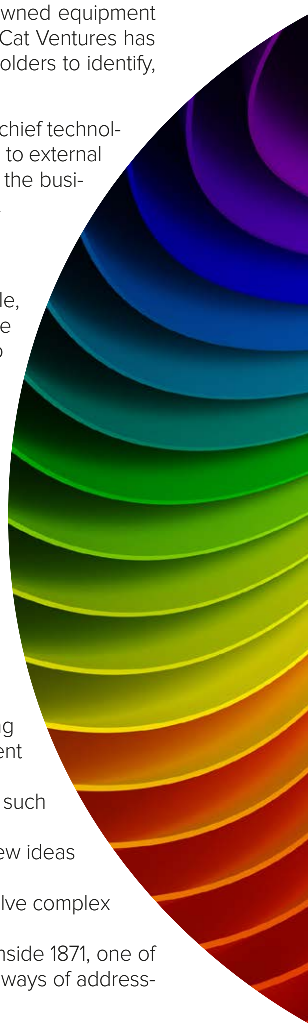
COMMENT

Clarify strategic objectives

Strategic objectives should drive the choice of external venturing models, as they express the mandate that the venture group is empowered to solve. The choice of objectives affects the level of connectivity required to the core business, degree of autonomy in decision-making, type and level of resources required and very often the funding structure. While objectives such as the examples below are not mutually exclusive, at the outset external venturing groups must seek to establish and build alignment with executive leadership around what the primary objective is for the group.

Build new business options beyond the core. Castrol InnoVentures is mandated to build new offerings and businesses beyond lubricants. Merck Global Health is focused on building new growth horizons beyond the pill. These types of effort typically require dedicated capital and independent structures and processes, as well as the ability to leverage key capabilities or cross-pollinate new ideas or thinking with the core business.

Extend and add value to the current core business, with new products, services or solutions. Caterpillar Ventures is focused on technologies and business models that generate value on top of a robust core business and extend it into new territories. For instance, YardClub helps customers maximise the use and productivity of their owned equipment through an online peer-to-peer equipment rental program, and is extending into data management. Cat Ventures has dedicated capital but maintains a nimble structure and collaborates with internal and external stakeholders to identify, prioritise, pilot and scale new solutions.



Transform existing businesses through partnerships with the startup community. BP's office of the chief technology officer scans internally for high-value business problems and acts as a network builder and bridge to external solutions in the technology and venture world. The organisation relies largely on funding from within the business units – it maintains a small team and budget – acting as an advocate of transformational change.

Some firms enter the venturing game but lack a clear sense of how they support the innovation agenda of the firm

Connect with the firm's innovation agenda

External venturing is a means to an end. Some firms enter the venturing game because it is fashionable, or because of executive fiat, but lack a clear sense of how they support the innovation agenda of the firm. This connection is vital to having staying power. We think about this connection in terms of two dimensions:

Nature of the challenge – innovation strategy. As noted in the previous section, a new venture group should have clear connection to the strategic aspiration of the company, with strong alignment at the C-level of the company. For instance, Humana Health Ventures is helping extend Humana's 2020 bold goal; BMW i Ventures is highly aligned with the corporate vision to shape global mobility.

Scope of the challenge – innovation scope. Clarifying the scope of the challenge the organisation has a mandate to solve through venturing helps influence the type of model that may be appropriate:

Existing known challenges around a central thesis can benefit from deliberate and structured collaboration with the startup community. There are multiple variants with different degrees of customisation, including:

- **Designer startups:** Custom-creating businesses around known challenges emanating from a single firm as lead client, as Frost Data Capital does.
- **Incubators:** Creating an environment for co-creating, design and testing new concepts onsite, pairing experts from the business with entrepreneurs, as BMW does with its Startup Garage and venture client model.
- **Accelerators:** Engaging in structured new concept and new business creation around core themes, such as Unilever Foundry and Disney Accelerator.
- **Going out to the crowd:** Using challenges, hackathons or crowdfunding campaigns to generate new ideas from outside, such as Whirlpool's use of Kickstarter to create the Zera food recycler.
- **Bringing the crowd inside:** Bringing entrepreneurs in and pairing them with company experts to solve complex needs, like JPMorgan's In-Residence Program.
- **Setting up shop with entrepreneurs:** Freshii has set up a retail fast casual store and test kitchen inside 1871, one of the largest incubators, to build direct connections with consumer-entrepreneurs and cultivate new ways of addressing challenges in its core restaurant operations.

Emergent challenges that may seem intractable to the industry require collaborating broadly with multiple stakeholders:

- Multi-corporate funds explicitly designed to engage players from broad range of areas, such as Chrysalix, the energy fund, and Cultivian-Sandbox, which is focused on driving transformational approaches in food and agriculture.
- Organising grand challenges – Daru Darukhanavala, the former chief technology officer of BP, set up a grand challenge of pipe alignment in oil wells, a $1bn problem. A solution emerged from an unexpected place, based on an analogue of installing medical stents.
- Designer startups – in this case corporations lead the custom-creation of a startup to address known challenges.

It has been said that if you always look in the same places, you are likely to find the same answers. This axiom is what drives external corporate venturing generally, but is especially true of situations in which venture groups are seeking to address emergent challenges.

When is corporate venture capital right for you?

Much of venturing is built on the idea that capital is a ticket to the dance. This is not necessarily the case. Indeed, corporate venture capital models abound – well over $5bn in VC dollars is invested each year and over a quarter of all VC deals have corporate money in them. However, many firms have found that they gain tremendous value by simply having a robust partnering approach, not necessarily having a dedicated pool of capital or fund structure. Several models mentioned in this article do not involve CVC funds. That said, often it does make sense to set up a fund structure when the following factors are present:

- When seeking to access existing businesses, not just ideas or entrepreneurial talent.
- When seeking to gain much broader access and visibility.
- When the pace of innovation is rapid and discontinuous.
- When the locus of innovation cannot be the firm.
- When the venture capital ecosystem is robust and well-established.

CVC funds can be managed internally by dedicating a pool of capital or committing funds over a defined period, and hiring the requisite talent to run the fund. Most CVC funds operate this way. In cases where the firm does not want to stand up a fund, an outsourcing model can be pursued, and new business models are emerging that address the desire some have for externally managed CVC funds. These funds can either invest directly in startups or, increasingly, are investing in venture funds as a limited partner (LP), where those funds align well to their strategic areas of interest.

Once the model has been chosen, the remaining three Cs influence the success of the model.

Commit to the model and have a strategy

Before entering the corporate venture capital arena, a company must be willing to commit sufficient capital and demonstrate staying power

There is a difference between having a strategy and being strategic. The latter is necessary but not sufficient. To succeed in the external venturing world, a firm must have a venture strategy, venture framework, a defined approach to its ecosystem and an aligned structure and governance model that is optimised for venturing. The group must be able to establish – and, critically, maintain – solid leadership commitment at the CEO level, coupled with a strong value proposition that goes beyond capital.

Before entering the corporate venture capital arena, a company must be willing to commit sufficient capital and demonstrate staying power. Shared ownership, commitment and strategic view internally are essential for the company to be steadfast through business and venturing cycles, taking time to ascend the learning curve and build reputation.

Finally, new kinds of internal structures and processes are usually required for a large company to interact effectively with startups – particularly making decisions quickly. It is also important for the company to have structures in place to scale successful startup engagements and capture value.

Configure the structure and organisation for speed

Corporations are typically not set up to operate at startup speed. They have various process and timing mismatches with startups. Their structure and processes must be revamped and optimised for speed, exploiting optionality, investigate and learn approaches and validated learning. They also need nimble organisation structures and approval processes.

Collaborate with customers and partners to accelerate value creation

Collaborative innovation is key to harvesting strategic returns from external venturing. Startups often lack access to customers and markets. Matching the speed, resilience and creativity of startups with the brands, capabilities and access of established organisations can create powerful combinations.

Where is all this going?

We see the next horizon of external innovation involving not merely a single approach, but an integration of approaches around a central strategy for the market. For instance, Citi Ventures has adopted what we refer to as an ecosystem innovation approach, in which it is developing and integrating a portfolio of methods as part of a more holistic strategy for engaging its ecosystem.

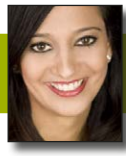
Citi's ecosystem of approaches – innovation labs, strategic partnerships and open innovation, futures research, accelerator programs – are all supported by Citi Ventures' CVC fund and aligned with Citi's strategic mission to conceive, launch and scale new initiatives that transform the future of financial services. It focuses on areas such as commerce and payments, data analytics and machine learning, and marketing and customer experience.

Integrating multiple methods as part of a more holistic approach to engaging and cultivating ecosystems is a trend we see continuing. It represents an evolution in engagement from one-to-one to one-to-many, and an evolution from orchestrating relationships to orchestrating networks of relationships. Corporate venturing is here to stay. Winners will be those that embrace change and disruption happening in the startup world around them, and accelerate innovation from the outside in as well as from inside out, and do so in a thoughtful manner. ◆

COMMENT

An exciting year ahead for cryptocurrencies

Jalak Jobanputra, founder, Future Perfect Ventures



The last two weeks of 2017 provided an exclamation point to the past year in the cryptocurrency world – more drama and a coin that surged to overtake Ether in the number-two spot. Ripple started the year at $0.006 and at the time of writing was priced at $1.96.

The company has raised $93m in venture financing to date, much of it from strategic investors including Santandar, in addition to its coin offering. While Ripple's technology is being used to test interbank transfers at several multinational banks – with 100 banks signed to its platform – it is unclear whether the company's token (XRP) is being used for these transfers. Moreover, the company will be releasing 1 billion XRP into the market on a monthly basis starting this month out of its corporate holdings.

It will be crucial to see how Ripple as a company manages its token float, and what benefits token holders will gain from corporate activities. I will be watching XRP to determine whether these tokens are securities, utilities or purely a speculative asset.

Bitcoin, after a 30% drop on December 22, recovered much of its value, although it retreated to $12,000 briefly after news that South Korea will be scrutinising cryptocurrency exchanges there. A large percentage of cryptocurrency trading originates from South Korea and Japan, and several news articles have recently reported how widespread "cryptomania" is in South Korea.

For those of us in the space, the news reports were not new news, and certainly not alarming. South Korea is requiring exchanges to perform standard know-you-customer and anti-money laundering checks which were not needed before. This is all a part of the maturation of the industry and was expected to happen.

I expect 2018 will see more regulation in the sector as more institutional capital comes in. In the cryptomarkets, I also expect to see continued volatility as profit-taking occurs in the new year. Blockchain technology will be adopted across more industries and sectors, and we will start to see which of the token offerings are able to deliver products and projects. It will be an even more exciting year for the sector than 2017 was. ◆

Global Corporate Venturing Leadership Society

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) $12,500 per year	Luminary (Company) $50,000 for 2 years
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Free Ticket to either the annual Summit or Symposium	TWO	THREE
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- 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
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Luminaries include:

Name	Company
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John Hamer	Monsanto
Akira Kirton	BP Ventures
Jacqueline LeSage Krause	Munich Re / HSB Ventures
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For more information or to apply today contact Janice Mawson:
+1 (703) 380 25 69 | janicemawson@globalcorporateventuring.com

GOVERNMENT HOUSE

Choose your top GGV article of 2017

Global Government Venturing invites its subscribers to choose the most important read of the year

As part of its annual review, Global Government Venturing is asking all its readers to select the top article of 2017. The selection below is a mixture of the most read articles of the year and an editorially curated list. The headlines link to the article in question, to refresh your memory, and you can find our poll here.

How to prepare for automation

Erik Vermeulen takes a look at artificial intelligence and asks what it takes to build the right kind of ecosystem.

By Erik Vermeulen, head of governance at Philips Lighting and professor of business and financial law at Tilburg University

Big deal: British Business Bank launches $500m fund

The Northern Powerhouse Investment Fund, first announced by then chancellor George Osborne in 2015, has secured $230m from the European Investment Bank.

By Thierry Heles, editor

Editorial: Brazil breezes through macro headwinds

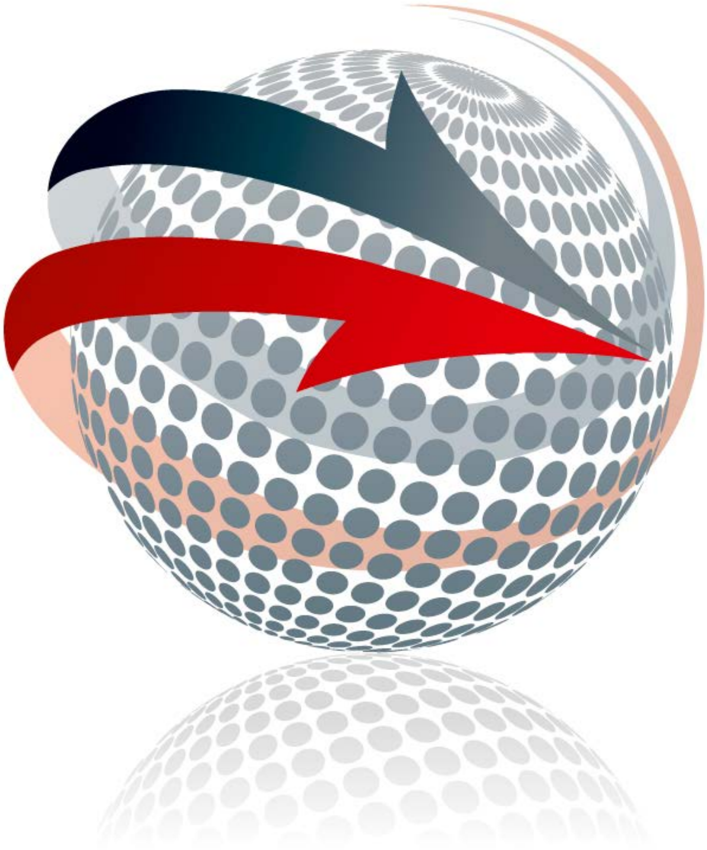
Over the past few weeks and months, the country has seen positive headlines for large deals, venture fundraising and corporate innovation initiatives.

By James Mawson, editor-in-chief

Europe's missing unicorns

Editor-in-chief James Mawson considers some of the reasons why the European ecosystem does not produce as many startups valued at $1bn or more as other innovation landscapes such as China.

By James Mawson, editor-in-chief



My five-point plan for the UK's new industrial strategy

Spindler, CEO of Capital Enterprise – the umbrella group for universities, incubators and accelerators, non-profits and enterprise agencies – gives his view on the UK's industrial strategy.

By John Spindler, CEO of Capital Enterprise and co-founder of the London Co-Investment Fund

Why entrepreneurs love government technology strategies

Tim Harper takes a closer look at government technology, with a particular focus on the UK and his own experiences launching water treatment company G2O Water.

By Tim Harper, chief executive of G2O Water Technologies

Have you made your choice? Then click here to vote

UNIVERSITY CORNER

Choose your top GUV article of 2017

Global University Venturing invites its subscribers to choose the most important read of the year

As part of its annual review, Global University Venturing is asking all its readers to select the top article of 2017. The selection below is a mixture of the most read articles of the year and an editorially curated list. The headlines link to the article in question, to refresh your memory, and you can find our poll here.

A university should be as generous as it can afford to be

Tom Hockaday, founder of Technology Transfer Innovation and former head of Oxford's commercialisation office, looks at why a university should be as generous as it can afford to be in matters of technology transfer.

By Tom Hockaday, founder of Technology Transfer Innovation

The UK wants to be a land of unicorns

The UK's innovation ecosystem is lagging behind its US counterpart in the scaling of startups to unicorns – enterprises worth more than $1bn – and to make up that shortfall the government needs to shift its focus.

By Thierry Heles, editor

Linda Naylor looks back on 15 years with OUI

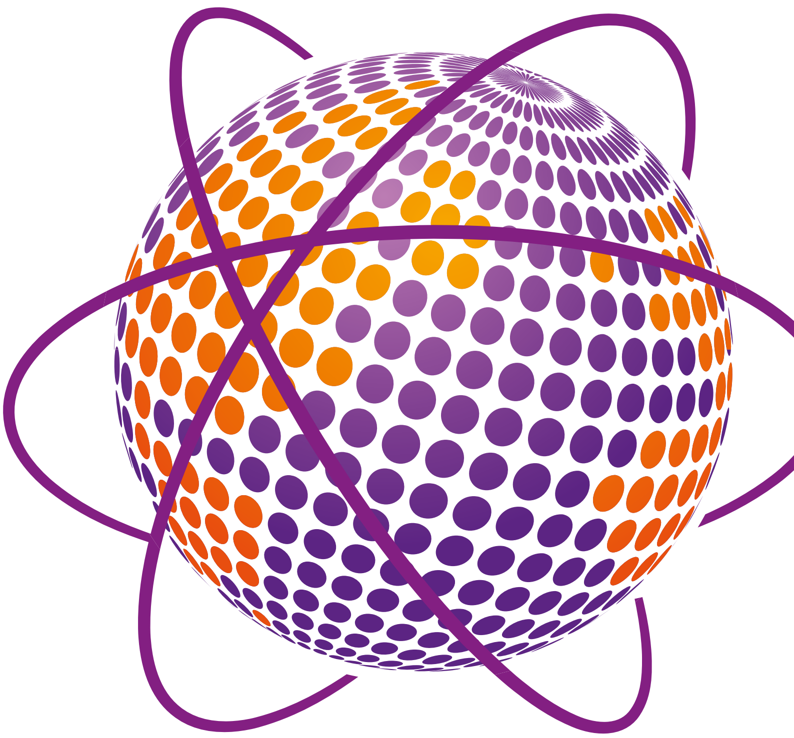
Oxford University Innovation's managing director Linda Naylor speaks to GUV about her influential career.

By Thierry Heles, editor

South Korea is ready to boost spinouts

The government of South Korea is ready to support university innovation, launching several initiatives and passing deregulation.

By Hicheon Kim, professor of strategy and organisation and director of the Korea University Business School Startup Institute



Principles and myths – sustaining spinout ecosystems

To find an application in the market generally requires an external entrepreneur founder or team.

By Brian McCaul, chief executive, Qubis, Queen's University Belfast's tech transfer office

Who are the founders of university spinouts?

By David Dorsey, associate, Osage University Partners

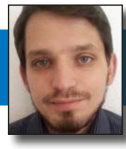
Have you made your choice? Then click here to vote

ANALYSIS

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

Venturing continues to grow

Kaloyan Andonov, reporter, GCV Analytics

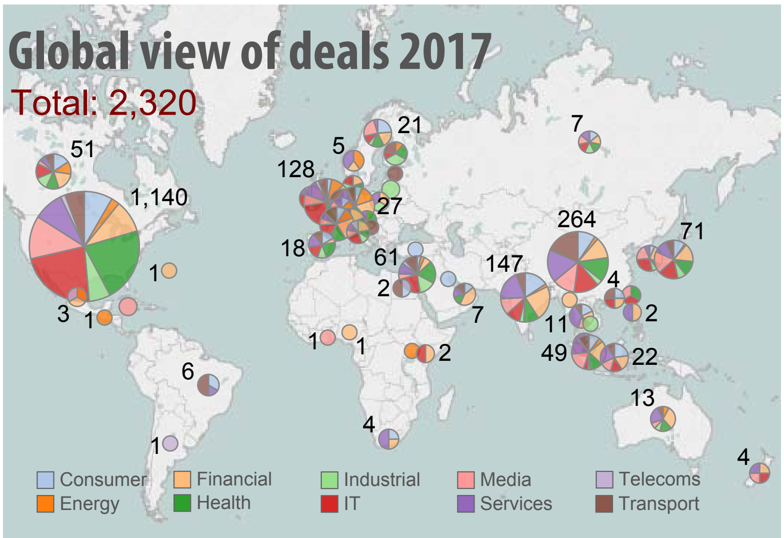


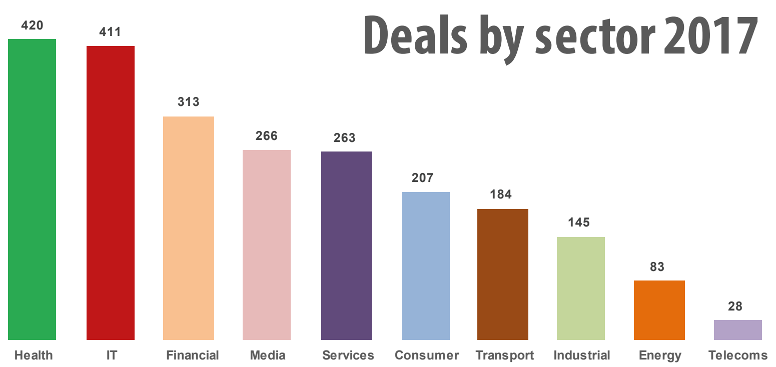
GCV Analytics tracked 2,320 deals worth an estimated total of $109.23bn raised through 2017. The deal count was a minor increase on a year-to-year basis (6%) compared with the 2,173 transactions of 2016. The total value of corporate-backed VC rounds reached a new high, surpassing the $100bn mark.

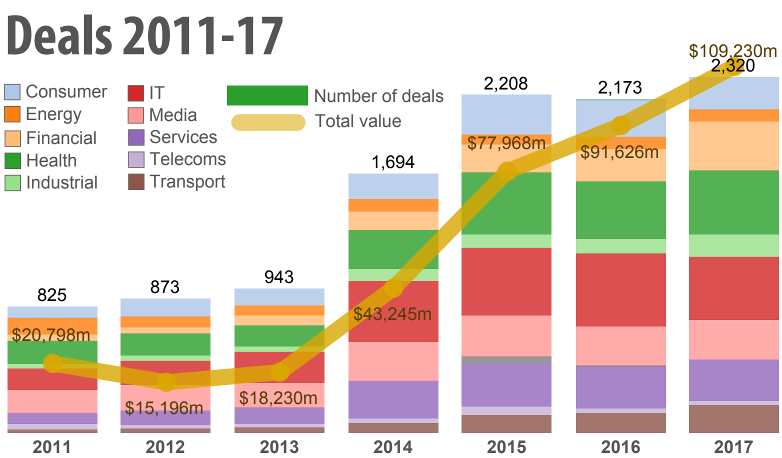
Nearly half of corporate-backed transactions in 2017 took place in the US (1,140). Other notable innovation geographies on a global scale were China (264), India (147), the UK (128), Japan (71) and Israel (61). East Asia still accounts for almost half the disclosed US dealflow but its often behemoth multibillion-dollar investment rounds actually account for good portion of the estimated total value of the entire corporate venturing world.

Emerging businesses from five sectors raised the largest number of corporate-backed rounds – health with 420 deals, IT with 411, financial services with 313, media with 266 and services with 263. These figures do not necessarily coincide with the sectors that have drawn most attention in the media or raised most capital.

On a quarterly basis, there was a gradual decrease in total deal count from the first quarter, when we tracked 599 transactions, to the fourth, when 557 transactions were recorded. In terms of total value, there was a trend upward until the third quarter, which featured the highest estimated total capital involved in corporate-backed rounds at $34.79bn.



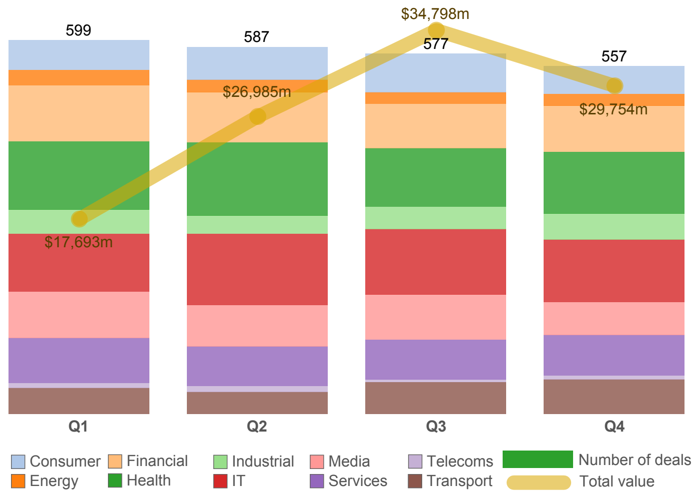




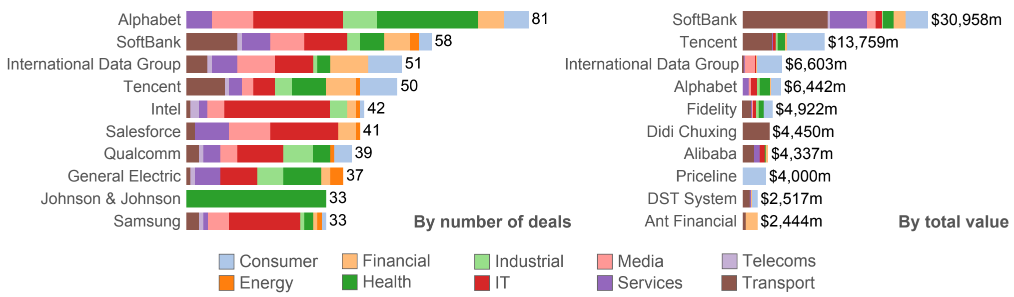
However, values dropped by 14% to $29.75bn in the fourth quarter.

US and Asia-based investors vied to be the top corporate investors in 2017 – diversified internet conglomerate Alphabet (Google) with 81 deals, telecoms company SoftBank with 58 investments, media and research firm International Data Group (IDG) with 51, internet company Tencent (50), semiconductor manufacturer Intel (42) and cloud service provide Salesforce (41), among others. The top three investors involved in the largest rounds were SoftBank, Tencent and IDG.

Deals by quarter 2017



Top investors 2017



Deals

GCV Analytics tracked many large deals through 2017. All of the top deals stood well above the $1bn mark. These sizeable rounds were raised mostly by emerging businesses in the ride hailing, e-commerce and media space. The most often found corporate backer of these top rounds was SoftBank and its $97bn Vision fund.

China-based ride hailing service Didi Chuxing raised $5.5bn in funding from investors including SoftBank. The round also included Silver Lake Kraftwerk, part of private equity group Silver Lake, and financial services firms China Merchants Bank and Bank of Communications. Didi Chuxing runs a Chinese ride hailing platform with 450 million registered users. In addition to taxis, it also offers car rental, carpooling, luxury and business transport, designated driver and urban bus services. The company revealed its “active internationalisation plans” and is working on intelligent driving and smart transportation projects.

Later on Didi Chuxing closed a $4bn funding round that featured SoftBank and Abu Dhabi’s Mubadala Investment Company. The participants were disclosed by a person familiar with the investment. The company said part of the funding will be used for an international expansion that will start with Taiwan, where it has licensed its brand to local operator Ledi Technology. Additional capital will go to the development of Didi Chuxing’s artificial intelligence technology and the exploration of new business directions, including charging and service networks for electric vehicles.

SoftBank and its Vision Fund agreed to invest a total of $4.4bn in US-based working space operator WeWork. The two paid $3bn to acquire a mixture of primary and secondary shares, and committed to provide $1.4bn in funding for three new regional WeWork subsidiaries in Asia. Founded in 2010, WeWork oversees a network of 160 co-working spaces, stretching across 50 cities in 16 countries. Customers can rent desks or full offices and have access to rapid-speed internet, office supplies and equipment, and other perks such as free coffee. WeWork plans to move heavily into Asia through its new subsidiaries WeWork China, WeWork Japan and WeWork Pacific.

Tencent led a $4bn round for China-based online services provider Meituan-Dianping, which reportedly valued the latter at $30bn. Travel services provider Priceline Group also participated in the round, among a host of other institutional and traditional venture investors. Meituan-Dianping runs a local services and e-commerce platform that processes about 21

ANALYSIS

Top 10 investments 2017

Company	Location	Sector	Round	Size	Investors
Didi Chuxing	China	Transport	–	$5.5bn	China Merchants Bank | Silver Lake | SoftBank
WeWork	US	Services	Stake purchase	$4.4bn	SoftBank
Didi Chuxing	China	Transport	E and beyond	$4bn	Mubadala Investment Company | SoftBank
Meituan-Dianping	China	Consumer	–	$4bn	Canada Pension Plan Investment Board | China-UAE Investment Cooperation Fund | Coatue | GIC | International Data Group | Priceline | Sequoia Capital | Tencent | Tiger Global Management | TrustBridge Partners
FlipKart	India	Consumer	E and beyond	$2.5bn	SoftBank
Grab	Singapore	Transport	E and beyond	$2bn	Didi Chuxing | SoftBank
BamTech	US	Media	Stake purchase	$1.58bn	Walt Disney
iQiyi	China	Media	–	$1.53bn	Baidu | Boyu Capital | Hillhouse Capital Management | International Data Group | Run Liang Tai Fund | Sequoia Capital
Lyft	US	Transport	E and beyond	$1.5bn	AllianceBernstein | Baillie Gifford | CapitalG | Fidelity | Janus Henderson Investors | KKR | Ontario Teachers' Pension Plan Board | Rakuten
FlipKart	India	Consumer	E and beyond	$1.4bn	Alphabet | eBay | Microsoft | PayPal | Tencent

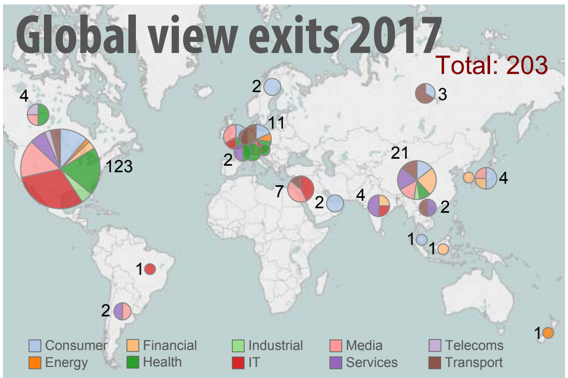
million orders each day, for items such as food, event tickets and flights, connecting 280 million customers each year with a network of some 5 million local businesses.

The SoftBank Vision Fund invested an amount reported to be "at least" $2.5bn in India-based e-commerce company Flipkart. Flipkart confirmed the investment in a statement without stating the figure, which was revealed by other sources, who added that the transaction involved the purchase of primary and secondary shares. Founded in 2007, Flipkart has built the largest e-commerce marketplace in India by estimated market share. It currently lists about 80 million products across over 80 consumer categories including electronics, fashion, appliances and furniture.

Earlier, Flipkart had raised $1.4bn from Tencent, online marketplace operator eBay and software provider Microsoft at a post-money valuation of $11.6bn. The funding was announced by the company alongside news that it had acquired eBay India, the local branch of eBay, which is to continue to run as an independent Flipkart subsidiary.

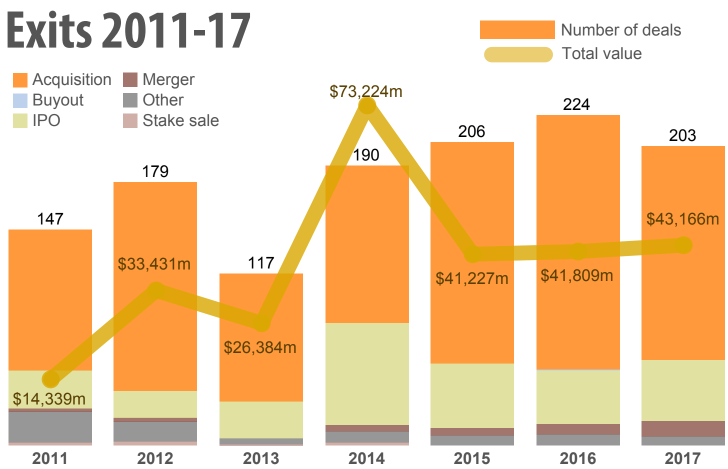
Exits

GCV tracked 203 exits involving corporate venturers and companies backed by such investors – a 10% drop from the previous year's 224. The US hosted more than half (123) of these transactions, followed by China (21). The total estimated capital involved in exits was $43.16bn, a modest 8% increase over the $41.81bn in 2016. Most of the top exits last year were initial public offerings (IPOs), though the overall share of IPOs remained stable compared with previous years. Last year also featured the largest acquisition of a tech company that had previously received corporate backing.



The largest acquisition of a corporate-backed company so far recorded was completed by Intel, which acquired Israel and US-based developer of vision driver assistance systems Mobileye for $15.3bn by purchasing 84% of the company´s outstanding ordinary shares.

Mobileye had previously received backing from financial firms Goldman Sachs and Morgan Stanley in the 2000s as well as by car rental services Enterprise Rent-a-Car and financial firm Fidelity in 2013 before it floated on the New York Stock Exchange in 2014. Founded in 1999, Mobileye develops a collision avoidance system, offering



ANALYSIS

Top 10 exits 2017

Company	Location	Sector	Type	Acquirer	Size	Investors List
Mobileye	Israel	Transport	Acquisition	Intel	$15.3bn	Undisclosed strategic investors
Snapchat	US	Media	IPO	–	$3.9bn	Alibaba | Benchmark | Coatue | Fidelity | General Atlantic | General Catalyst | Geodesic Capital | GIC | GSV Capital | Institutional Venture Partners | Kleiner Perkins Caufield & Byers | Lightspeed Venture Partners | Meritech Capital | NBC Universal | Sequoia Capital | SV Angel | T Rowe Price
ZhongAn Online Property and Casualty Insurance	China	Financial services	IPO	–	$1.5bn	Ant Financial | CDH Investments | China International Capital Corporation | Keywise Capital Management | Morgan Stanley | Ping An Insurance | SoftBank | Tencent
Delivery Hero	Germany	Consumer	IPO	Rocket Internet	$1.13bn	Global Online Takeaway Group | Naspers | Rocket Internet
NeoTract	US	Health	Acquisition	Teleflex	$1.1bn	Johnson & Johnson | New Enterprise Associates | Quilvest
Qudian	China	Financial services	IPO	–	$900m	Ant Financial | BlueRun Ventures | Hangzhou Liaison Interactive Information Technology | Kunlun | Phoenix Fortune | Source Code Capital
Yixin Group	China	Transport	IPO	–	$867m	Baidu | Bitauto | China Orient AMC International | JD.com | private investors | Tencent
Intacct	US	Financial services	Acquisition	Sage Group	$850m	American Express | Battery Ventures | Bessemer | Costanoa Venture Capital | Deloitte | Emergence Capital Partners | Goldman Sachs | Hummer Winblad Venture Partners | JK&B Capital | Morgan Creek Capital Management | Sigma Partners | Split Rock Partners
True North Therapeutics	US	Health	Acquisition	Bioverativ	$825m	Baxalta | Baxter International | Biogen Idec | Cowen | Franklin Templeton Investments | GSK | HBM Healthcare Investments | iPierian | Kleiner Perkins Caufield & Byers | MPM Capital | New Leaf Venture Partners | OrbiMed | Perceptive Advisors | Redmile Group | undisclosed strategic investors
Musical.ly	China	Media	Acquisition	Bytedance	$800m	Cheetah Mobile | DCM | GGV Capital | Greylock Partners | Qiming Venture Partners

computer vision and machine learning, data analysis, localisation and mapping for advanced driver assistance systems and autonomous driving.

US-based visual media platform Snap closed its IPO at $3.91bn, after its underwriters took up the option to buy an extra 30 million shares. Snap issued 145 million shares at $17 each, which were augmented by 55 million shares divested by existing backers to raise an initial $3.4bn, giving exits to investors including Alibaba, Tencent and Yahoo. NBCUniversal subsequently revealed it had invested $500m in Snap through the offering, giving it a stake of about 2.1%.

Snap is best known for the Snapchat platform but its IPO filing indicates its long-term plans involve expanding into an all-purpose visual media company that will also delve into hardware.

SoftBank invested $500m in China-based online insurance platform ZhongAn Online Property and Casualty Insurance as part of the latter's $1.5bn IPO. ZhongAn issued approximately 199 million new shares on the Hong Kong Stock Exchange at HK$59.70 ($7.64) each, at the top of the HK$53.70 to HK$59.70 range it had set. SoftBank acquired a stake of just under 5% for its investment. ZhongAn's online platform provides more than 300 specialised insurance packages, with its most popular option being to append insurance to e-commerce purchases to cover the cost of returning the goods.

Germany-based online food ordering platform Delivery Hero went public in a €996m ($1.13bn) IPO that gave a partial exit to e-commerce holding company Rocket Internet. The IPO consisted of 18.95 million new shares, 15 million shares held by existing investors and 5.09 million shares held by the Rocket Internet-founded Global Online Takeaway Group, all at €25.50 each, at the top of the €22.00 to €25.50 range set earlier. The shares, issued in Germany and Luxembourg, equated to 18.8% of Delivery Hero's overall share capital, giving it a valuation of $5.3bn.

Delivery Hero has built an online food ordering and delivery platform that serves customers in more than 40 countries across Europe, Latin America and the Middle East, North Africa, and Asia-Pacific.

NeoTract, a US-based medical device manufacturer backed by pharmaceutical firm Johnson & Johnson, agreed to an acquisition by medical device maker Teleflex for a total consideration of $1.1bn. Teleflex paid $725m in cash on closing of the deal. The remaining $375m are payments contingent on certain commercial milestones related to sales uo to the end of 2020. Founded in 2004,

NeoTract has developed a minimally invasive device, UroLift, to treat lower urinary tract symptoms caused by an enlarged prostate gland, a condition known as benign prostatic hyperplasia.

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Top 10 funding initiatives 2017					
Fund	**Country**	**Sector**	**Type**	**Size**	**Investors**
Sino-CEE Financial Holdings	China	IT, industrial, consumer	VC fund	11bn	Fosun Group | China Life Insurance
China Internet Investment Fund	China	IT, media, consumer	VC fund	$4.5bn	China Mobile | China Unicom | China Post Insurance | Citic Guoan | Agricultural Bank of China | Cyberspace Administration of China | China Ministry of Finance | China Development Bank
Xiaomi Yangtze Industry Fund	China	IT	VC fund	$1.7bn	Xiaomi | Wuhan City Government | Hubei government
Apollo Fund	China	Transport	VC fund	$1.5bn	Baidu
Foxconn-IDG Transport Fund	China	Transport	VC fund	$1.5bn	International Data Group | Hon Hai
Unnamed UCar unit	China	Transport	CVC unit	$1.47bn	Ucar
Apple advanced manufacturing fund	US	Industrial	VC fund	$1.bn	Apple
Baidu Fund Partnership	China	IT, telecoms, financial services	VC fund	$1.bn	Baidu | China Life Insurance
Ping An Global Voyager Fund	China	Health, financial	VC fund	$1.bn	Ping An Insurance
Unnamed Xiaomi India Fund	India	Services, telecoms, IT, financial services	VC fund	$1.bn	Shunwei Capital | Xiaomi

Funding initiatives

We tracked 297 funding initiatives with corporate backing last year, including 150 venture funds, 55 new units, 42 corporate-backed accelerators, 17 incubators and 33 other initiatives. Most of these initiatives were set up in Asia (105), North America (101) and Europe (63). The countries that hosted the most were the US (92), China (45), India (20) and France (19).

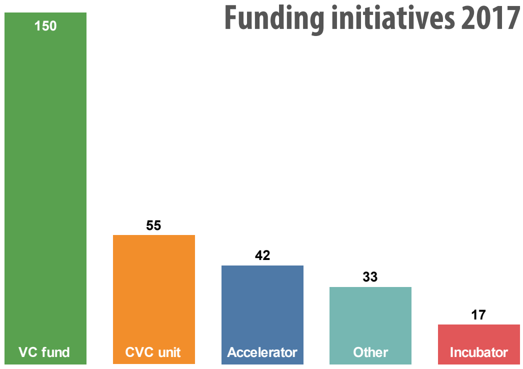
The overall number of such initiatives were down 10% compared with the 332 in 2016. The total estimated value of the initiatives ($43.34bn) was much lower than the 2016 figure of $137.44bn but this was largely due to the effect of the unusually large $97bn SoftBank Vision Fund, which was announced in 2016. Discounting that fund, the 2016 figure would have been $40.44bn. However, Asia accounted for $31.55bn or about 73% of the total capital raised in these initiatives in 2017, which indicates the leading role of this region.

The largest fundraising initiative in 2017 featured the government of China. China's premier Li Keqiang attended the fifth meeting of the heads of government of Central and Eastern European countries in Riga, Latvia, and launched Sino-CEE Financial Holdings, which was set to manage a €10bn ($11bn) investment fund that will focus initially on businesses in Central and Eastern Europe.

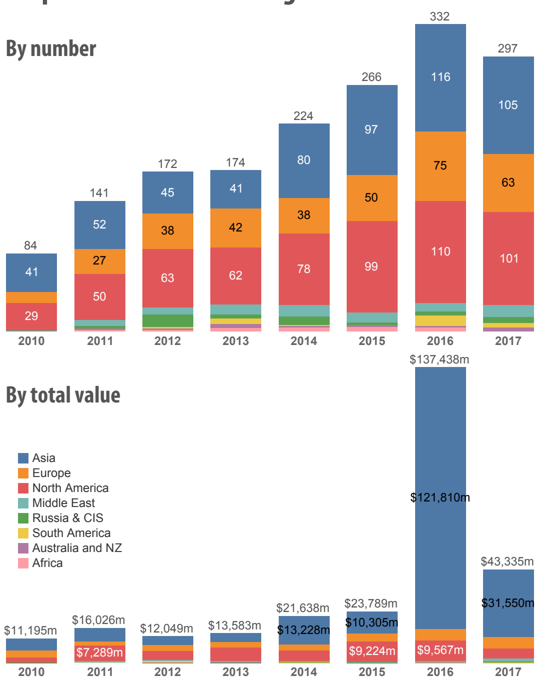
The fund was also supported by two China-based corporate investors – insurance provider China Life Insurance and conglomerate Fosun. The targeted sectors include high-tech manufacturing, consumer goods and infrastructure projects. Sino-CEE Financial Holdings was actually set up earlier by state-owned financial institution Industrial and Commercial Bank of China – by some accounts the largest financial services firm in the world by total assets and market capitalisation.

The Chinese government also set up a fund backed by several state-owned firms that will invest in the country's internet sector. The targeted size of the fund was RMB100bn ($14.5bn), though by the time it was announced the fund had raised $4.35bn in capital. The China Internet Investment Fund will be overseen

Funding initiatives 2017



Corporate-backed funding initiatives 2010-17



ANALYSIS

by state agencies the Cyberspace Administration of China and the Ministry of Finance. It forms part of the Chinese government's Internet Plus initiative, which aims to strengthen traditional industries through the introduction of internet technology. Financial services firm Industrial and Commercial Bank of China (ICBC), its largest limited partner, supplied $1.45bn. Other LPs include telecoms companies China Mobile and China Unicom, insurance provider China Post Insurance and Citic Guoan Group, part of investment firm Citic Group Corporation.

Co-investor analysis of deals 2017

Columns include non-CVCs & CVCs

	Intel	Alphabet	International Data Group	Qualcomm	SoftBank	Tencent	General Electric	Johnson & Johnson	Angel Investors	Sequoia Capital	Kleiner Perkins Caufield & Byers	New Enterprise Associates
Intel		10	3	9		1	8		17	9	17	8
Alphabet	10		5	10	8	6	10	2	52	29	63	18
International Data Group	3	5		5		6			16	18		4
Qualcomm	9	10	5		9	1	5		14	17	4	13
SoftBank		8		9		6	1		4	11		5
Tencent	1	6	6	1	6			1	5	23	1	
General Electric	8	10		5	1				4	5	10	3
Johnson & Johnson		2				1			2		7	7
Goldman Sachs	8	8	1	6	3	1	4		3	5	5	8
Fidelity	5	9	2	5	1	2	3		5	6	2	11
Salesforce	3	7					1		8	6	8	7

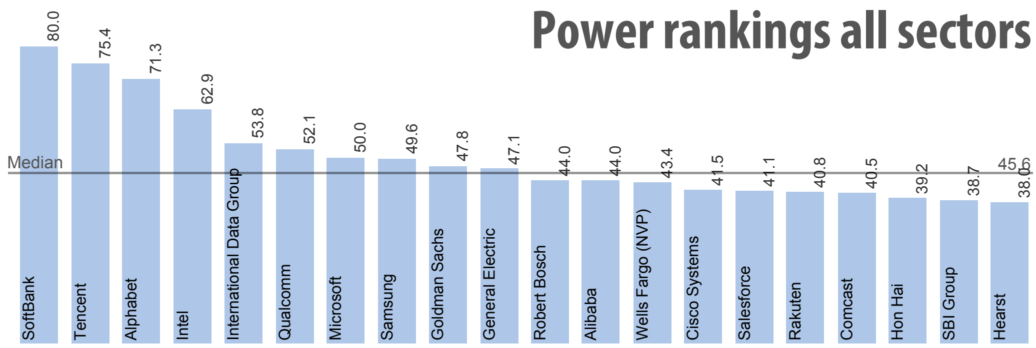
China-based smartphone manufacturer Xiaomi agreed to form a RMB12bn strategic investment fund in partnership with the government of the Chinese province of Hubei. Xiaomi, Hubei's guidance fund Yangzte River Industry Fund, and the government of Hubei's largest city, Wuhan, agreed to each provide 33% of the capital for Xiaomi Yangtze Industry Fund, with the RMB12bn figure representing the overall target. The fund will invest in companies able to expand the Mi ecosystem Xiaomi is building around its connected devices. The ecosystem would include a wide variety of connected hardware products ranging from appliances and TVs to robots and component makers.

China-based internet company Baidu announced the RMB10bn Apollo Fund, which will be focused on the autonomous driving sector. The fund was established to back 100 self-driving car projects over the next three years, seeking opportunities across the globe in the areas of software, hardware, vertical services and data providers. It drew its name from Baidu's open-source autonomous driving platform Apollo, which has attracted 70 industry partners so far, including car manufacturers like Hyundai. Baidu announced the latest iteration of the platform, Apollo 1.5, in conjunction with the Apollo Fund. Portfolio startups will gain access to the Apollo platform, which offers features such as high-definition maps, day and night obstacle detection and end-to-end deep learning.

China-based manufacturing services provider Foxconn partnered venture capital group IDG Capital, the Asian subsidiary of IDG, to form a RMB10bn investment fund focused on transport technology. Foxconn and IDG supplied 10% of the capital as well as experts to run the fund. The unnamed fund will target a range of technologies including autonomous driving software and advanced batteries, and will invest in companies based in China, Japan and the US. The fund is expected to be active for seven years, and to "encompass early and mature-stage financing, combining VC and private equity models".

On-demand chauffeured travel platform UCar formed a $1.47bn investment subsidiary. The strategic investment fund is to cover the whole automotive value chain. Ucar's chairman and CEO Lu Zhengyao said: "We are already the single largest vehicle buyer in the country and we have a strong sales network and rich service offerings for people using cars." The fund's first commitment as a lead investor was in China-based electric vehicle developer Xiaopeng Motors, which raised RMB2.2bn in a series B round. Founded in 2014, Xiaopeng is working on an all-electric sports utility vehicle that can be mass-produced relatively quickly. ◆

Power rankings all sectors



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Global Corporate Venturing

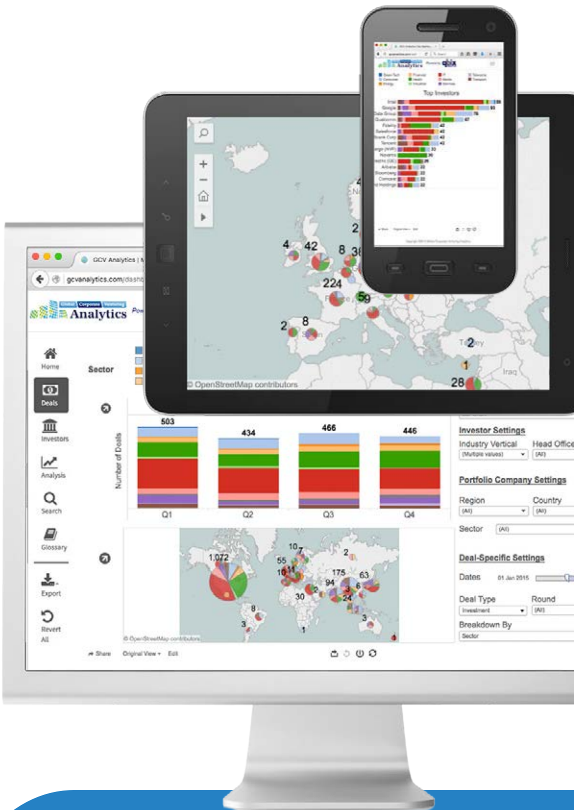
Analytics

Arnaud's CEO asked him how many deals their closest five competitors had done that year. Minutes later he pinged her the answer – and all the detail plus some cool looking charts.

Marie urgently needed to create a graph showing the number of CVC investments, and their dollar value, in healthcare in Asia over the past two years. Three minutes later the graph was in her presentation.

Zhang is a consultant and had a meeting scheduled with a CVC. Needing to do a quick bit of background research he popped into GCV Analytics. He walked into the meeting knowing what deals they had done and who they had co-invested with and was also able to tell them what the competition had been doing.

Anika works for a government and needed to benchmark inward venture investment from corporates, compared to other similar countries. She used the information to get an increased marketing budget.



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