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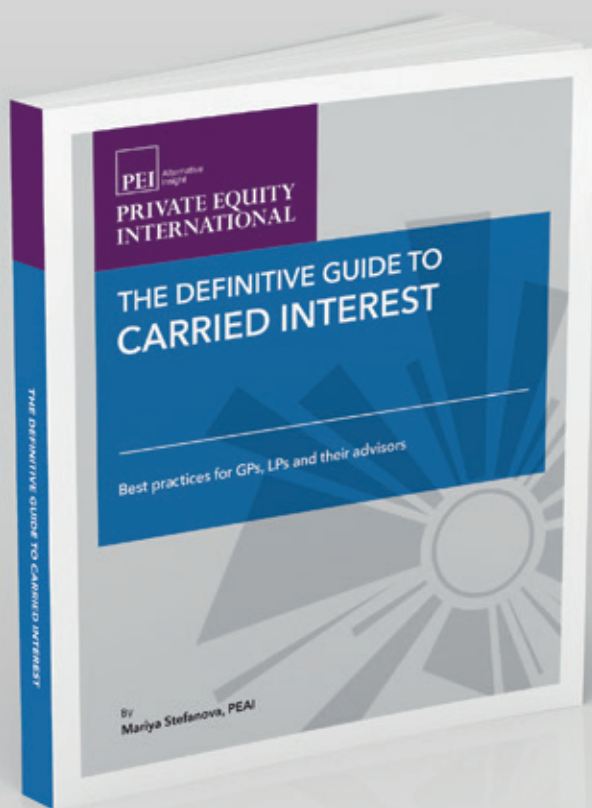
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lessons**

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How to contact us

Senior Editor, Private Equity

Toby Mitchenall

toby.m@peimedia.com, +44 20 7566 5447

Senior Editor, Private Equity, Americas

Isobel Markham

isobel.m@peimedia.com, +1 646 380 6194

Senior Special Projects Editor

Graeme Kerr

graeme.k@peimedia.com, +44 20 3862 7491

Special Projects Editor

James Linacre

james.l@peimedia.com, +44 20 7566 5465

News Editor

Adam Le

adam.l@peimedia.com, +44 20 7566 5437

Senior Reporters

Carmela Mendoza

carmela.m@peimedia.com, +44 203 640 7512

Rod James

rod.j@peimedia.com, +44 20 7566 5453

Asia Reporter

Alex Lynn

alex.l@peimedia.com, +852 2153 3148

Reporter

Preeti Singh

preeti.s@peimedia.com, +1 646 565 5312

Contributors

Amy Carroll, Claire Coe Smith, Simon Meads, Victoria Robson

Managing Editor, Production: **Mike Simlett**

Head of Production: **Greg Russell**

Production Editors: **Daniel Blackburn, Adam Koppeser**

Copy Editor: **Eric Fish**

Head of Design: **Miriam Vysna**

Senior Designer: **Lee Southey**

Designers: **Denise Berjak**

Head of Marketing Solutions,

Private Equity Group:

Alistair Robinson

alistair.r@peimedia.com, +44 20 7566 5454

Subscriptions and reprints

subscriptions@peimedia.com

Customer Service

customerservices@peimedia.com

Editorial Director: **Philip Borel**

Director, Digital Product Development:

Amanda Janis

Director of Research and Analytics: **Dan Gunner**

Managing Director, Americas: **Colm Gilmore**

Managing Director, Asia: **Chris Petersen**

Group Managing Director, Brands and Markets:

Paul McLean

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Insight

Key trends **Seven things you need to know about investing in technology**

Technology has changed dramatically over the past decade and investing in it has changed too, *writes James Linacre*. As it has developed, so too have the opportunities that it presents.

While technology has become ubiquitous, the need to become a specialist has also grown; it is increasingly difficult to target technology as a whole and increasingly important to pick and choose where the greatest opportunities lie. This is doubly imperative as the field has become so much more crowded in recent years.

Opportunities are to be found all around the world. North America – and the US in particular – continues to lead the way, but European activity is growing and interest in Asia-Pacific is strong. Cloud technologies and artificial intelligence take many of the headlines, but it is a developing market and innovation is continuing to drive rapid change.

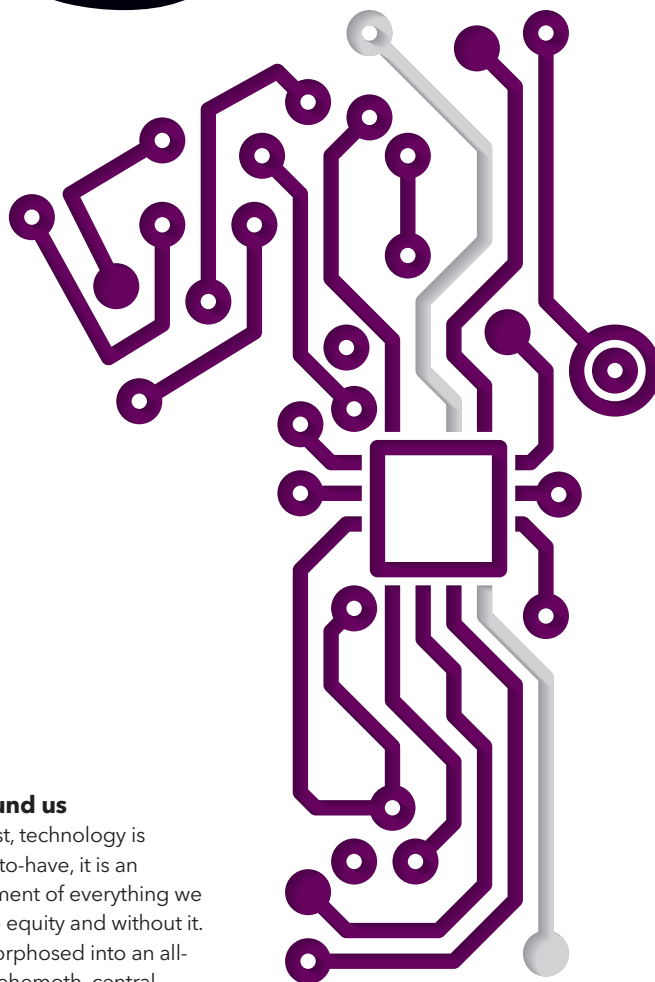
Tech is all around us

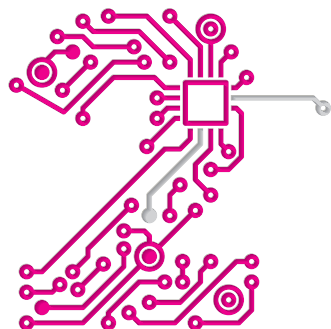
First and foremost, technology is no longer a nice-to-have, it is an unavoidable element of everything we do, within private equity and without it. Tech has metamorphosed into an all-encompassing behemoth, central to a dizzying array of market sectors.

Technology has changed from a vertical, distinct and siloed off, to a horizontal, intertwined with every single investment proposition. As Salim Nathoo, partner at Apax Partners, says: “Technology is now core to pretty much every business.”

Tech is both disrupting existing companies and providing a platform for emerging start-up opportunities. It has become so well established in so many parts of our lives – both personal and working – that it simply cannot be ignored.

“Every single investor is interested in tech and has increased their focus on it,” says Miguel Luina, fund investment team principal at Hamilton Lane.





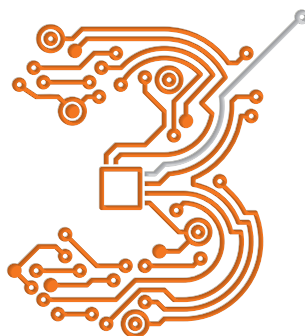
It pays to get specific

The greater scope now offered by technology also allows for greater specialisation. Specialisation and focus in, for example, software and services – as Hg has pursued – can increase synergies between portfolio companies and drive growth.

There are sufficient opportunities even in technology's niches now that investors do not need to include other verticals in their mandate. A pure, narrow specialism, even on something as focused as software and services, can bring enviable returns.

"Expert knowledge of particular verticals, and expert knowledge of how people use technology and services to improve workflow efficiency, is hugely important for delivering top-quartile returns in the future," says Matthew Brockman, managing partner at Hg.

Being a sector specialist requires a GP to make structural changes – both within the organisation and in the architecture of its funds. Once those changes are made, however, specialising in tech allows a firm to build up a level of expertise that can then be invaluable to a variety of portfolio companies, particularly when walking them through the adaptation to a new, tech-centric world and navigating a path around the many potential pitfalls along the way.



Competition is cranking up

Being able to lead matters all the more now that technology is so firmly in the spotlight. The sector is no longer the preserve of traditional venture capital funds as they have been joined by large buyout funds with a technology emphasis and generalist private equity houses with the same focus. Growth capital funds are also involved in later stage companies, as all eyes turn to what was once a smaller, often overlooked, part of the market that has now become omnipresent.

In fact, as tech opportunities have proliferated, the range of interested parties has also grown. "The definitions of venture and growth equity are getting

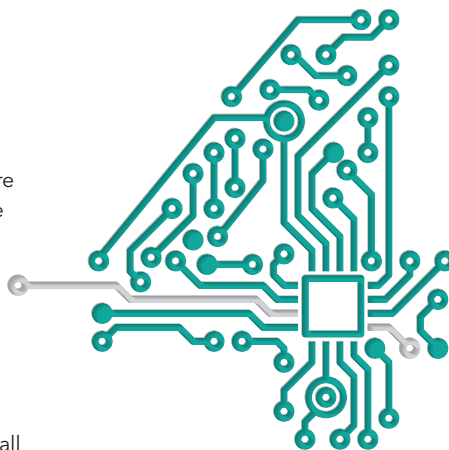
“Technology is now core to pretty much every business”

Salim Nathoo, Apax Partners

more complex and nuanced over time," says Brijesh Jeevarathnam, partner and co-head of global venture fund investments at Adams Street Partners.

It is no longer a case of the whole tech sector being served by venture and growth equity firms. "Now there is seed capital, early stage venture, early stage growth, late growth, pre-IPO rounds, and so on," says Jeevarathnam.

This increased competition has also driven activity beyond its traditional heartlands and across the globe. Canada is emerging as a tech leader, joining the likes of Israel and South-East Asia as well, of course, as the US.



More than a US story

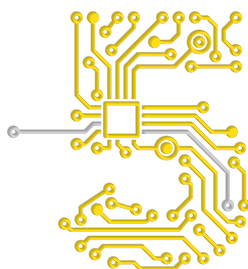
For all of Europe and Asia's progress, North America is still the technology powerhouse. North America-focused vehicles dominated the list of funds in market as of October. There were \$34.4 billion funds with a North American focus, compared with \$16.7 billion with a focus on Asia-Pacific and \$4.6 billion with a European focus.

However, the second-largest fund in the market – SoftBank Group's \$5 billion SoftBank Innovation Fund – has a Latin America focus. Of the top 10 largest funds in market, three are focused on Asia-Pacific and three on North America. The largest of the latter – K1 Investment Management's \$1.5 billion K4 Private Investors fund – is \$500 million smaller than the largest Asia-Pacific fund, Next Orbit Ventures' \$2 billion Next Orbit Ventures II fund.

European venture capital and growth capital investments both hit record highs last year, according to Invest Europe. The trade association points to €8.2 billion going into venture investments in European companies and €11.9 billion into growth, with the information, communications and technology sector accounting for the largest slice of each.

“Expert knowledge of particular verticals, and expert knowledge of how people use technology and services to improve workflow efficiency, is hugely important”

Matthew Brockman, Hg

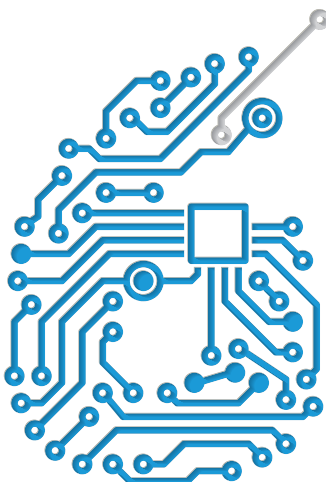


Heads in the cloud

One of the most exciting developments in technology has been the rapid rollout of cloud technologies, allowing a range of industries to enter the tech space without having to make massive expenditures on the hardware – such as servers and routers – traditionally associated with the space. Having the basic infrastructure taken care of so simply and cheaply allows them to focus their time and capital on other priorities.

With the public cloud allowing companies to get to revenue stage without requiring significant venture investment, cloud technology and software-as-a-service have hit a tipping point. No sector will be unaffected by this. Media and publishing companies were affected early and financial services are going through it now.

All of this extra storage allows for more data. The use of open-source or proprietary data technologies to capitalise on and make actionable the data already inside an organisation could be a game-changer for how value is created in portfolio companies over next 5-10 years, believes Permira co-head of technology Brian Ruder.

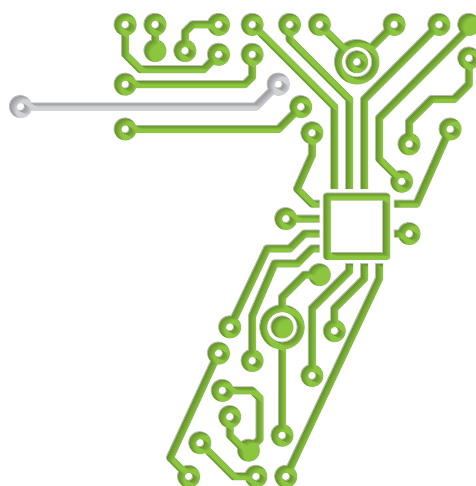


Is AI for real?

Mention technology and most people think of artificial intelligence. But when is artificial intelligence not artificial intelligence? When it's business intelligence, using big data in a rules-based way, but without any element of machine learning.

“It is clear that the sophistication around these technologies is going to increase significantly and, at some point, AI will have big implications for a whole range of businesses. It will be interesting to see how it develops but it's not an investment theme per se we are actively pursuing,” says Ruder's colleague Richard Sanders, co-head of technology at Permira.

AI and automation are changing the way we all work – not just in private equity or in tech investing, but a vast array of white-collar jobs, with law firms, for example, leaning much more heavily on automated software to share documents securely and populate templates. From accounting to healthcare, automation is revolutionising so much that it can be hard to keep up.



This is just getting started

The rapid pace of change in technology is expected to continue. Jeevarathnam sees the current innovation cycle continuing for another decade at least. It is a different beast to the capital markets cycle – the duration of which is anyone's guess. While the capital markets cycle impacts technology mainly through late-stage valuations, it is not really a factor in the earlier stage, where new companies are created and early-stage venture financing gets involved.

Those venture-backed companies are tending to stay private for longer than they used to. Whereas historically the private phase may have lasted five or so years, now it is common for venture-backed companies to stay private for 10.

The significant growth of the addressable markets for these companies means that it can be more attractive to keep them private while growth challenges are overcome and then make a later exit, safe in the knowledge that the buyers will still be there.

When GPs do exit, everyone wants a piece of the tech pie. GPs are no longer selling portfolio companies solely to the old usual suspects – the like of Cisco, Microsoft or Oracle. While those buyers are still interested, so are a whole range of competitors, including companies that simply would not have had a tech presence a decade ago, such as the likes of General Motors or McDonald's. ■



New York
130 West 42nd Street
Suite 450
New York
NY 10036
T: +1 212 633 1919

London
100 Wood Street
London
EC2V 7AN
T: +44 20 7566 5444

Hong Kong
19F On Hing Building
1 On Hing Terrace Central
Hong Kong
T: +852 2153 3240

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Editor's letter

The tech takeover changes everything



James Linacre

james.l@peimedia.com

Investing in technology is far more varied than many realise. Technology is changing everything. It has grown in such a way that it is not just one sector, but both a family of subsectors and an element of every other sector.

And tech funds continue to grow. The average size of tech funds closed in Q1-Q3 2019 was \$418 million, over \$100 million more than in 2018. In turn, the average size in 2018 was greater than it had been in 2017, which was greater than 2016.

PEI data also show \$50.2 billion was raised for tech funds in the first nine months of this year. The corresponding figure last year was \$34.1 billion and the total for the whole of 2018 was \$55.7 billion.

The growth is unsurprising. Technology today has come such a long way from technology 10 years ago. As everything migrates to the cloud, as automation, digitisation and artificial intelligence stop being science fiction terms and become routine elements of daily working life, technology becomes an increasingly significant area of activity.

The rapid pace of change is only expected to continue. While the capital markets cycle appears due to turn, the tech innovation cycle looks set to run for another decade. Opportunities are increasing by both geography and sector, and technology is no longer a vertical, it is a horizontal. It is part of everything we do – both at home and at work – and has become too important for investors to overlook.

As a core part of almost every line of business, all investment is increasingly in technology. It is a broader, deeper market than it has ever been – and we're still just getting started.

Enjoy the supplement.

“ While the capital markets cycle appears due to turn, the tech innovation cycle looks set to run for another decade ”

James Linacre

KEYNOTE INTERVIEW

Big data, bigger opportunities



*Permira's co-heads of technology, **Brian Ruder** and **Richard Sanders**, on the investment opportunities emerging from big data and transition to the cloud*

Q What are the major disruptive tech trends creating opportunities today?

Brian Ruder: Cloud technologies and software-as-a-service (SaaS) business models, although not new, have reached a real tipping point and our primary software efforts are focused in this area. That can either involve native product champions in a SaaS world, or cloud transition stories where we pivot a market leader into a SaaS model.

The other key trend is data dominance. That means using open-source or proprietary data technologies to capitalise on and make actionable the data already inside an organisation. We think that is a real game changer in terms of how value will be created within our portfolio companies in the next five to 10 years.

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Richard Sanders: Transition to the cloud has huge implications for all kinds of industries. In the past, in order to launch a technology company, you had to buy servers and routers, put them in the basement and write code to your own hardware. It was a capital-intensive business.

Now, you can pretty much start a company with a credit card. The capex is paid by Amazon, Google or Microsoft, and new development technologies mean that code updates are continuous. The vast amount of capital that has been raised for SaaS and other cloud-based companies can be spent on real R&D and sales and marketing, in-

stead of basic infrastructure. That has created a new generation of efficient and highly disruptive businesses.

Q Which sectors do you see as being most disrupted?

RS: The first sector to be disrupted was media – newspapers, music and more recently TV. Retail is another obvious example. Financial services are to some extent protected by regulation, but nonetheless, fintech companies can innovate so much more quickly than banks running legacy systems.

In 10 years' time the financial services landscape will be completely different to today. Heavy asset industries like oil and gas will probably be the slowest to transform, but really there are no sectors that will remain unaffected.

BR: In almost every sector there is now a top 10 player which would emphatically say its core competency is technology. That was not the case a few decades ago. It might be someone obvious, like Amazon in retail or Apple in handsets. But, increasingly, we see the same thing happening in other areas. It is an inexorable trend.

Q What do you look for in prospective technology investments?

BR: I would say that excellent products and product development capabilities are a must for any company we look to back. We don't think you can fix a broken product strategy in five years.

Good, growing markets would be next. The combination of great products in good to great markets is where we like to play. Then we look for something that we can do differently, something that hasn't been done before.

This may often involve a business with an under-optimised sales and marketing operation, a public company that has been shackled by the short-termism of the public markets, or a division of a much larger company with totally different strategic priorities. In all cases: great products, but with something to tune and accelerate going forward.

RS: Market leadership is important. There is a winner takes all, or winner takes most, aspect to technology investing.

A dream deal would be a market leader in a growth segment that has been badly managed; or one where an unstable ownership situation has provided an opening for our funds to acquire it. Those are the types of situation we love to see.

Q What challenges do investors face investing in fast-changing technology?

RS: Our industry has historically been focused on profitability. Private equity has always valued cashflow and the ability to leverage that cashflow. If you are trying to build market leadership in a high-growth environment, the need to continually innovate and invest can be more important than generating cash.

Indeed, some of the best businesses become more valuable by re-investing that cash in product and behind favourable unit

TeamViewer: More than an IT support platform

TeamViewer, a leading global connectivity platform, was a division of GFI Software when Permira first acquired it in 2014.



"It pressed a lot of our buttons," says Sanders. "It had a great product. It was a clear market leader in remote-control IT support and it had fantastic unit economics – the acquisition cost versus customer lifetime value was at a ratio we had never seen before."

At the point of acquisition, however, TeamViewer did not have a true recurring revenue model. Customers bought perpetual licences but did not sign contracts to tie them in. Nonetheless, Permira was able to analyse 10 years of historical cohort behaviour to establish that while the revenue model was not contractually recurring it was sufficiently statistically recurring for it to underwrite future growth.

"When we acquired TeamViewer it was, in many ways, an overgrown start-up," recalls Sanders. "The business was throwing off €80 million of cashflows but didn't have the processes and systems we are used to. It was outsourcing its finance department to its parent, so there was a huge amount of work to be done."

Once systems and processes were in place, Permira set about building value. First, the firm transitioned the business model, so that products are now sold on subscription.

"It sounds straightforward, but changing a model that was already working well took some guts," says Sanders. "It's not something that could ever have been done as a public company."

Having analysed TeamViewer's customer base, Permira also helped dramatically expand its addressable market. "We found retailers using TeamViewer to shut down POS terminals and companies using it to control snow cannons," recalls Sanders. "It is far more than an IT support platform. It's a connectivity platform with broad applicability."

The expanded market definition and strong recurring revenues meant all exit routes were open when the firm decided to start with the exit this year. After the recent IPO, the Permira funds remain the largest shareholder with 58 percent.

"TeamViewer was in a fortunate position. It had spectacular unit economics and top line growth in the high 20s, as well as margins north of 50 percent," Sanders explains. "Marrying those two, we had plenty of exit options. In this instance the public markets won."

economics. Future acquirers want to see well-invested companies.

I think PE investors have sometimes been slow to embrace that shift, but it is dangerous to ignore. There are companies that have lost their leadership position because of failing to invest sufficiently in a great product.

BR: Our job is to grow the equity value of the businesses we invest in. Sometimes that is correlated with growth in underlying profitability, but not always. As Richard says, we care a lot more about outstanding unit economics than we do about the bottom line.

Take Magento. We carved that business out of eBay and pivoted it to a cloud model. We took profitability right down by investing in that transition and it worked out fantastically. We sold the company to Adobe as its e-commerce platform and I can assure you that the current profitability of that business had no relation to how Adobe looked at the price to pay.

The other important ingredient in a strong exit is creating an engine of product development. Take Informatica, a market leader in enterprise cloud data management which we took private in 2015.

More than half of new bookings at that company today are from products launched since it went private. That's the kind of story that plays well with both public markets and strategic buyers which are looking for an innovation cauldron, as well as raw revenue growth.

Q What opportunities are there to support portfolio companies in legacy industries that are looking to embrace tech advances?

BR: There are lots of opportunities to unearth value in companies sitting at that rich intersection between technology and our other four sectors – financial services, industrial tech and services, healthcare and consumer. Klarna is a great example. That is a regulated bank in Sweden, yet it is also an online payments disrupter.

RS: Other examples would be the e-commerce platform in Poland, Allegro, or also The Knot Worldwide, which we created by combining two companies to create an online one-stop-shop for wedding planning. These new business models are emerging

“If you are trying to build market leadership in a high-growth environment, the need to continually innovate and invest can be more important than generating cash”

RICHARD SANDERS

in all different verticals, using cloud-based technology, improving the customer experience and driving efficiency.

Q What does the prospect of an economic downturn mean for technology investment?

RS: The best companies in this sector tend to be largely acyclical as they are on the right side of long-term secular disruptive trends. Their business models typically combine wonderfully defensive recurrent revenues, together with plenty of growth upside. A lot of these companies will continue to grow healthily in an economic downturn. At the same time, we would actually welcome a valuation correction because the market today feels somewhat overheated.

BR: Every single tech company that Permira backed – that existed before the financial crisis – grew revenues straight through 2008 to 2010. It has become the best defensive segment for our funds to invest in and so we remain net buyers of technology even today.

Q Which nascent tech trends do you think will prove most disruptive over the next 10 years?

RS: The obvious one is artificial intelligence. There is a huge amount of hype around AI at the moment, but there is also a lot of misunderstanding about what it actually is. Much of what is being described as AI is really just sophisticated BI – business intelligence. It uses big data in a way that is largely rules-based but does not actually use machine learning.

It is clear that the sophistication around these technologies is going to increase significantly and, at some point, AI will have big implications for a whole range of businesses. It will be interesting to see how it develops but it's not an investment theme per se we are actively pursuing today.

BR: The effective deployment of technology that exists right now, around the cloud and data, is going to have a more material impact on the companies we invest in over the next 10 years than emerging technologies. We always keep an eye on what is around the corner, but while AI is interesting, the impact it will have is dwarfed by the broader adoption of technologies that are already commercially available. ■

LPs enjoy glut of options for tech investing

Technology now extends into every corner of private equity. Claire Coe Smith reports on the sector's rise and how investors are making the most of it



For investors looking to invest in technology, there have never been more options or more opportunities. No longer an industry sector but rather a feature of every single investment proposition, LPs are targeting tech through mid-market and large buyouts, venture capital and growth equity, and they are getting increasingly sophisticated in their analysis of market segments.

Miguel Luina oversees global venture, growth equity and technology strategy for consultant Hamilton Lane. He has seen interest in the sector explode.

“Every single investor is interested in tech and has increased their focus on it. We are seeing a lot of tech disrupting existing

companies in addition to the emerging start-up opportunities, so how to invest in technology and protect your portfolio from technological change is front of mind for almost every investor right now,” says Luina.

Historically, the route into tech investing was via traditional venture capital funds, doing series A, B and C fundraisings. Today, there are large buyout funds that have a technology focus, as well as generalist private equity firms where the value-creation strategy is concentrated on technology. In between are growth capital funds, taking minority investments in later stage companies that are too mature for venture.

In Europe, both venture capital and growth capital investments stood at record highs in 2018, according to Invest Europe.

There was €8.2 billion going into venture investments in European companies and €11.9 billion into growth. The information, communications and technology sector was the largest beneficiary of investments in both segments.

Alex Chaplin, director at placement agent FIRSTavenue, notes that venture capital is playing a much greater role.

He says: “There is certainly an increase in investors looking at both venture capital and growth. The average venture capital fund size is now such that the investors who avoided venture capital because they needed to write \$20 million-plus cheques but could not be more than 10 percent of a fund now have enough options at sufficient scale.

“Furthermore, the trailing 10-year

“Every single investor is interested in tech and has increased their focus on it”

MIGUEL LUINA
Hamilton Lane

median IRRs on venture funds are getting closer to private equity, so the gap is closing. If investors are able to get access to the brand names or best performers then fantastic, but now they can get good performance beyond the top decile so a venture capital programme is more viable. The problem historically has been unrealised track records, so it is only by fund three that most of these GPs are talking to institutions and have track records that stand up to analysis.”

There are so many subsectors within technology that the list of attractive areas is hard to narrow down. Luina points to cloud, software as a service, cybersecurity, consumer fintech and consumer healthcare as particularly hot spaces.

Salim Nathoo is a partner in the tech and telco team at buyout firm Apax Partners, with a seat on the investment committees of Apax Buyout Funds, Apax Digital Fund and Apax Global Alpha, the firm’s listed vehicle. Everywhere he looks, technological change is rife.

“The technology world is undergoing seismic shifts given the advent of cloud, artificial intelligence, evolving interfaces, ubiquitous high bandwidth, security and data privacy and evolutionary architecture, among other forces,” says Nathoo.

“Technology is now core to pretty much every business, many of whom now have to compete against digital natives such as Amazon.”

Apax has taken the approach of focusing in depth on three sub-sectors that benefit from those trends, he explains: IT services, enterprise software and telecoms. Some of the firm’s portfolio companies in the technology area include software development company ThoughtWorks, Nordic IT business Evry, insurance software firm Duck Creek Technologies and Texas-headquartered ECI Software.

Apax also recently paid \$3.4 billion to acquire global satellites business Inmarsat alongside Warburg Pincus, Canada Pension Plan Investment Board and Ontario Teachers’ Pension Plan Board.

Nathoo says: “Our approach is to find businesses that have very good long-term potential, but may not be fully polished, and then to work with these companies to enhance their market position and accelerate growth.”

A taste for growth

As well as favouring large buyout funds like Apax that have a technology specialism, investors are also getting more sophisticated about accessing tech investments by carefully selecting GPs.

“LPs generally are not saying to us that they want to target a particular sector within technology – they are putting that down to the fund manager. What they may look at and differentiate by is whether a manager is focused on B2B or B2C – B2C has seen some great growth and opportunities recently,” says Chaplin.

“We are seeing LPs looking at the structure behind those investments and whether the GPs are bringing just cash to the table or adding value in some other way, perhaps by making introductions to entrepreneurs or sales opportunities, having a track record in commercialising ideas, or something like that.”

One theme is the increasing appetite for growth equity, where traditional private equity investors who have historically demanded control positions are having to

get comfortable with minority investing in order to increase their technology exposure.

One driver for that is the fact companies are staying private longer, with some of the most successful ‘unicorn’ businesses reaching billion-dollar valuations before accessing the public markets.

Chaplin says: “That means investors that were getting exposure to technology through the public markets and want to see that stage of growth are needing to switch to either hybrid investors who can do both public and private or start looking at later stage growth funds.”

Finer slices

For the more sophisticated LPs, and particularly those operating out of northern California, the market is getting even more fragmented.

Brijesh Jeevarathnam, the Silicon Valley-based partner and co-head of global venture fund investments at fund of funds Adams Street Partners, says: “The definitions of venture and growth equity are getting more complex and nuanced over time. There was a time when there was venture, growth equity and then companies went public or got acquired.

“Now there is seed capital, early stage venture, early stage growth, late growth,



“The definitions of venture and growth equity are getting more complex and nuanced”

BRIJESH JEEVARATHNAM
Adams Street

pre-IPO rounds and so on. Clients’ appetites for those different areas have become more sophisticated, and while there are some who just want the whole spectrum, most investors are much more targeted.”

Jeevarathnam adds venture and growth equity have different risk-return profiles.

“We like to invest across the spectrum, with the exception of pre-IPO, super late-stage investing, which is most prone to valuation risk,” he says.

There are fast-moving dynamics at both ends of the spectrum. Luina points to an explosion in the number of seed managers providing very early injections of capital. “One of the shifts is that series A, B and C rounds are now coming later in a company’s life cycle, because companies need less capital to start,” he says.

“There are a lot more services available to them, like the public cloud, for example, which used to require upfront capital investment. They can now get to revenue stage without requiring venture investment.”

While the centre of tech investing, particularly in venture capital, has long been in northern California, the universe of opportunities is becoming increasingly global.

Europe is generating a growing number of tech businesses, but activity is springing up all over.

New hubs are emerging in places such as Canada, with Toronto for artificial intelligence and machine learning and Quebec for life sciences, while Israel has always been a strong venture capital market.

There are also now strong companies coming out of South-East Asia, Latin America and elsewhere.

“I expect to see more LPs making an active allocation to technology in the coming years. That has certainly been the trend and I would like to see that continue,” says Chaplin.

“I suspect most activity will be in the growth capital space and all those buyout funds that do not currently have a technology team will need to go out and get one.” ■

KEYNOTE INTERVIEW

Playing the macro trends in software



*Specialisation provides the necessary expertise to take software firms to the next level, says Hg managing partner **Matthew Brockman***

Sector specialisation and knowledge-sharing can enable private equity to take advantage of long-term trends in software and technology services, and so help companies to develop further and faster. Over the past decade, Hg has transitioned from a generalist European mid-market buyout firm into a software and services specialist, with a three-fund structure that enables it to invest in the full range of small-cap to large-cap software and services companies.

The shift has turned Hg into the biggest private equity investor in European B2B software, with a portfolio equivalent to the continent's third-largest software group by value. Specialisation and focus in software and services can increase synergies between portfolio companies and drive growth, explains Hg managing partner Matthew Brockman.

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Hg

Q When and why did Hg decide to focus on software and services?

Software investing has been a key focus for Hg since the early 2000s and had been very successful for us. Since the 2012 fund vintages – Genesis 7 and Mercury 1, our first small-cap fund – we took out other verticals and only focused on software and technology services. We now have three funds from 2017, with the addition of Saturn to focus on larger businesses, exclusively for software and services.

The reason to focus on software and services is really because of the macro picture. Business processes – how people file taxes, pay employees, buy insurance products

and the like – are more tech-enabled and tech-supported than ever. We think that is a very sustained, long-term trend.

From a private equity investment perspective, specialisation matters, and it is increasingly hard to be a generalist. Expert knowledge of particular verticals, and expert knowledge of how people use technology and services to improve workflow efficiency, is hugely important for delivering top-quartile returns in the future.

Q Were there structural changes needed to become a specialist software investor?

There were three main structural changes. The first was implementing a very clear strategy, with the organisation aligned in its way of thinking about and investing in software and services.

The second thing was architecture of funds. We developed a smaller fund to sit below our mid-market fund, and a larger cap fund above it, to give us three funds focused on software in Europe.

That means we are able to invest in small companies with an enterprise value of €100 million right up to companies worth multiple billions in enterprise value. We now look to make 10 to 12 software services investments a year across these funds, which is probably four or five times more than anyone else in Europe.

The third piece is a really specific operational capability. We regularly have to deal with the same questions: how to get a better sales organisation; how to deliver customer success; whether it is possible to develop software better offshore.

Repeat application of knowledge and expertise is hugely important. We now have 180 people in the firm, and over 30 in our operations portfolio team. The application of that kind of scale to such a focused strategy is a real competitive advantage.

Q Which macro trends are driving software use?

All those business activities around processing payments, paying employees or filing taxes, collecting and disseminating business data, are increasingly automated. One reason is simply processing power. Moore's Law states that every two years your computer's processing capacity typically doubles – that's been a very long running trend.

Another is that AI and increased use of data means more automation in white-collar jobs – accountants, lawyers, insurance brokers, tax officials. That's another decades-long trend, and we are still very much at the front end of it.

Software is also replacing hardware spend as hardware costs fall. This trend is accelerated by the ready availability of cloud-based processing power. A great consumer-focused example of this trend is something we can all see regarding TV.

In the UK, for instance, you used to perhaps spend thousands on a TV set and hundreds on a TV licence from the BBC. Now you're more likely to spend hundreds on a TV but are paying monthly subscriptions for streaming with Netflix, Amazon and Sky – all of which you can also consume on the go. People are loading up lower hardware spend with higher software spend – that is the big trend we are backing.



Taking a long-term view with Visma

Q How has Visma changed over the 13 years you have been an investor?

Visma is a software company that has grown hugely from an enterprise value of €450 million in 2006 to over €8 billion now. It's done meaningful M&A and added products that it can sell to its growing customer base in the enterprise resource planning market.

The company has gone from being a Norwegian business, to being a pan-Scandinavian business, to now having a large footprint in the Netherlands. The game plan, to be a leading provider in smaller markets, has served it really well.

Q And how has Hg's operational plan for the business changed?

We underwrote the focus on SaaS and its potential to drive Visma's market about four to five years ago.

At that time SaaS in SME company applications was relatively nascent, so we were taking a view about how that would grow, but it has worked really well. We also focused on increased functionality, more recurring revenue and more value to the software products it sells.

We have recalibrated the plan at Visma every three to five years. The original thesis from 2006 has evolved through new investment cycles although topics like sales organisation and organisational evolution remain. The fundamental value of the business still underpins our plans.

Q How has experience from Visma helped you with other software businesses?

We are applying the ideas that played out at Visma across other portfolio companies. For instance, at IRIS, a similar UK business, we are adding new verticals and new products in a similar 'playbook'. We are also trying to find more of these businesses that fit with the fund architecture point. Can we find other companies with 10 or 15 years of growth ahead of them? Can we start with small beginnings?

One of the deals in our Mercury 2 fund is FE Fundinfo in wealth and asset management. We started with a €20 million deal to buy FundInfo, merged it with FE and now have a €100 million enterprise value business. We think it has got huge prospects and multiple years to scale and grow.

Q How do these macro trends translate into practical opportunities for private equity?

One of our core themes is investing in software companies that we can help professionalise. Typically these companies have been built by founders and entrepreneurs; they have very good products that serve a discrete end-market. Often there's a huge opportunity to develop the business commercially, whether that's the sales organisation, marketing, customer relationship work, or how the product is delivered or priced.

The second theme we like to back is buy-and-build. You are essentially taking a business that has a network of happy customers and a great market position, and using that platform to acquire other pieces of functionality the customer group is going to use. If you own a small company buying payroll and bookkeeping services for example, chances are you are probably going to need some HR products to help manage your workforce and you are probably going to need tax and compliance products or expense reporting products also.

Q These sound like broad themes, so why is specialism so important?

The advantage is that we have the capabilities in-house to handle those workstreams. As an example, take a business such as A-Plan, which is a broker of UK insurance policies.

Our data team at Hg has done a huge amount of work on the customers, their proclivity to buy policies and how we can cross-sell other things they need. In order to achieve this view of the customer, first we had to migrate the entire business's IT systems onto the latest generation cloud software product, the first business in Europe to adopt this kit. Then we were able to do a huge amount around automation, back office and software support for that business to make it hugely more efficient and profitable when it serves its customers.

As specialists, we can de-risk a business improvement plan. It's quite scary for a CEO and CTO when a company like A-Plan is being told to go re-platform its entire IT system for the first time in 20 years, and then go and use big data to improve the customer journey. They could waste a load of time and consulting fees and still buy in the wrong product – and get the wrong stuff out.

“People are loading up lower hardware spend with higher software spend – that is the big trend we are backing”

Because we have done it across dozens of other businesses, we know when it is going to work and when it is going wrong. We can reduce the failure rate of corporate improvement plans and speed up the processes. This idea of our portfolio sharing their homework, and reducing the risk of change projects, is at the heart of what we are doing.

Q How else are you encouraging companies to share knowledge?

We run 25 to 30 portfolio-led conferences a year. We get all the companies together to look for best practice sharing, facilitating interaction and knowledge. Most of our companies are doing similar things for customers but in different vertical markets. They are happy to share their homework because they are not in competition, but they do face a lot of the same challenges.

We run social platforms to connect people. We have built an online, closed network system called Hg Hive, which now has well over 1,000 new executive members from 30 Hg portfolio companies in the last 12 months. We host a lot of our own knowledge on that, so people can click and download Hg plans or contacts in areas like cybersecurity or customer success.

It also enables them all to talk to each other and compare notes. The synapses are increasing with each new investment we make and business we back so you have an exponential increase in direct knowledge sharing rather than it always coming through Hg.

Q What does the future hold for software and services investing?

The trends we have seen for the last few years look like they are persisting and probably accelerating. Genuinely multi-tenant, hosted SaaS software is becoming more prevalent and the value in the software is increasing.

This is because of the data. If I have a multi-tenant hosted product, I know how my customers are using the software and can see where they are spending time and where they are getting value.

I get so many information sets. Then I can run that data through a predictive engine to work out what else I can do for that customer, based on this knowledge. That activity is more and more prevalent and more and more valuable. ■

Tech sector shows its value

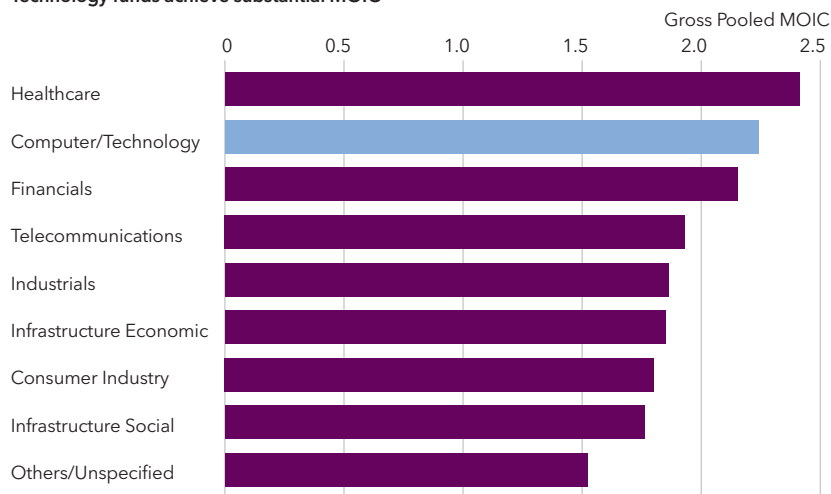
Strong returns, growth characteristics and perceived recession resistance keep technology at the front of the pack, finds James Linacre

GP fund specialisation has increased since the financial crisis, with tech increasingly divided into subsectors such as internet, fintech and cloud services. CEPRES data show tech deals have returned \$2.1 for every \$1 invested.

“The success of technology investments for private equity is their continuous revenue growth prospects. Disruptive tech-driven businesses are able to re-invent or create whole new revenue streams that simply didn’t exist previously,” says Christopher Godfrey, president, CEPRES. “Certain investment years have stronger EBITDA growth for invested companies because of normal market cycles. Uniquely, we see technology driven businesses are less impacted in down years than others.

Companies invested preceding the GFC saw a negative effect on EBITDA, but this was much less for tech companies.” ■

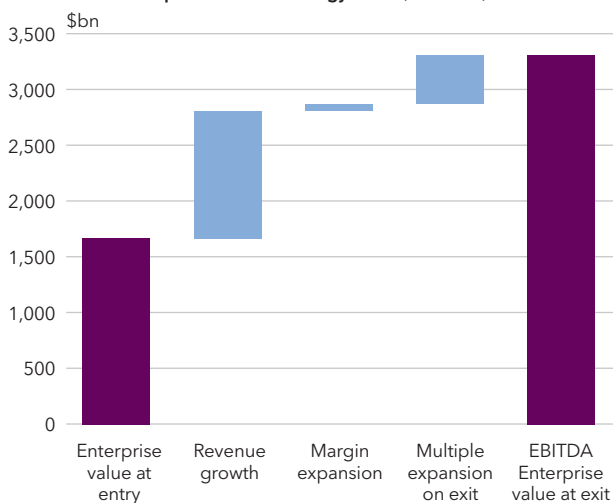
Technology funds achieve substantial MOIC



Includes realised and unrealised buyout deals with invested equity capital of \$50 million or more and initial investment 2009-15

Source: Bain and Company/CEPRES PE.Analyzer

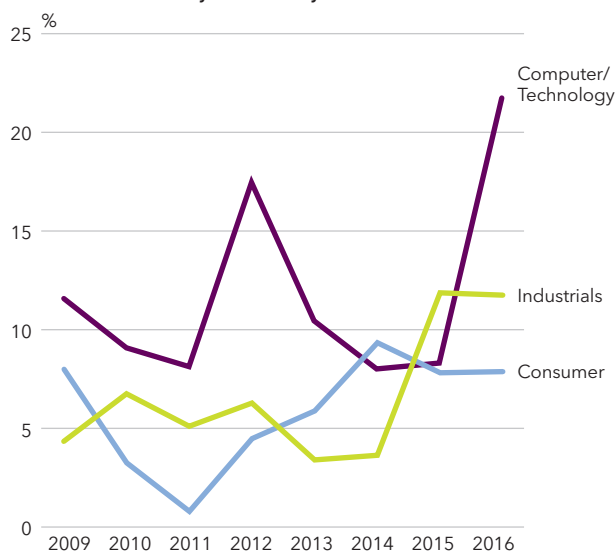
Value creation for post-crisis technology deals (2010-18)



Value creation based on EBITDA development (896 deals, excludes records with missing values)

Source: CEPRES PE.Analyzer

Mean EBITDA CAGR by investment year



Source: CEPRES PE.Analyzer

Putting a price on technology



Guest comment by **Matthew Warren**

Valuing tech assets is a challenge, especially as excitement swirls around high-growth companies, but there are guidelines to follow, says KPMG's director of valuations

Aspiriring small tech businesses are often pegged as the next wave of innovation, collaboration and target investment. KPMG Enterprise's most recent *Global Venture Pulse* survey revealed that venture capital investment in UK scale-up businesses – those that have progressed beyond the start-up stage but are still targeting dramatic growth – surged 19 percent during Q3 alone, with more than £7.4 billion (\$9.5 billion; €8.6 billion) invested so far this year.

Buyers and investors alike are attracted to the unique characteristics and potentially vast returns associated with scale-ups. Their business models often offer innovative solutions to problems in the market that are either not being resolved or that are being delivered at a subpar level.

Additionally, these companies are based on rapidly scalable business models, founded specifically with the intention of becoming high-growth, disruptive enterprises.

So, if tech scale-ups are this generation's 'dotcoms', how do we avoid the bust?

With opportunity comes challenges. At KPMG Enterprise we continue to see a set of obstacles in the market that confound participants and lead to an environment in which some investors in tech scale-ups struggle to publicly list the companies.

The question of how to value these scale-ups is particularly tricky, but it is a crucial part of the investment process. Given the potential rewards on offer, it raises the question: how are these companies valued? Is it according to the intrinsic value of the technological offering. Or is the value being skewed by the excitable association with a tech scale-up?

By no means am I suggesting that panic should ensue. There is no sign that sectors such as fintech, biotech and healthtech are slowing down, and the UK has a global reputation as home to world-leading disruptive businesses that continue to attract capital.

"We can all think of recent high-profile examples which demonstrate that value is only real if it can be achieved"

But valuing companies is a subjective undertaking, and this is particularly the case for scale-ups.

Many private equity and investment vehicles still place significant reliance on the post-money price of a recent investment as a primary valuation technique. But without increased consistency and the challenging of such approaches, market scepticism will continue to rise.

For instance, questions may be asked about the circumstances surrounding the investment. Was funding provided by new investors or just existing shareholders? Was adequate information provided to allow for informed pricing decisions? Were there strategic investors or forced sellers?

The recent IPEV valuation guideline update indicated that PORI should not be considered a standalone valuation technique but should be used to calibrate the inputs used in other valuation approaches.

What makes valuation elusive

Scale-ups frequently focus on the amount of funding required and not necessarily on the price at which that funding is raised. We can all think of some recent high-profile examples which demonstrate that value is only real if it can be achieved.

There are three primary challenges to overcome before a scale-up can be valued.

First, given their early stage of opera-



tions and heavy spending on developing, testing and marketing their products or services, scale-ups are often loss-making or, in some cases, not yet revenue generating. This makes it difficult to value them using traditional sales- or earnings-based methods.

The second challenge is a stifling lack of data. In addition to limited reliable historical data – only a small portion of which is shared publicly – many start-ups and scale-ups are disruptors or create new markets or

fresh offerings. This means limited information is available on key considerations such as market size, competitors and future potential margins, which has an impact on the consistency of the estimation process.

The third challenge is that tech scale-ups are very illiquid and inherently high risk, and many are likely to fail. Incorporating this variability of outcomes into a view on value and pricing throughout the various milestones of a tech scale-up's growth can be challenging.

The traditional valuation methods – including use of replacement cost, net assets, discounted cashflow and sales and earnings multiples – will remain. But an exciting part of this story is that these traditional methods can be augmented using more unconventional approaches. These include the following:

- **Probability weightings** If a scale-up's projections seem optimistic, they could be adjusted using probability weightings. For example, if a business plan is deemed optimistic or milestone-driven, a probability weighting could be applied to the proposed outcomes. At a more sophisticated level, Monte Carlo simulations could be adopted to model the probability of different potential outcomes.
- **Option pricing** Real option models value potential business decisions and aggregate the value of these 'options' to a base valuation. Option valuation and the use of decision trees can help to build up a scale-up's value in increments based on the business decisions it is expected to take and milestones it is seeking to achieve.

Although such approaches are established, they are not widely practised, and when they are applied it is often in concert with more traditional valuation approaches.

However, as technology evolves, I can see these approaches becoming more appealing, particularly in a deal context.

We know that investments in high-growth technology assets have tremendous risk.

But with a solid understanding of the valuations process that should take place between investment and disposal, private equity buyers will be better placed to consider deals in these unprecedentedly volatile portfolio environments. ■

Matthew Warren is director of valuations in deal advisory at KPMG in the UK

KEYNOTE INTERVIEW

Understanding value in tech



Fredrik Näslund, partner at Nordic Capital, explains how the GP defines tech-investing and where to find value

Private equity firms, competing with strategic buyers for richly valued assets, have emerged as a force to be reckoned with in the technology space. GP-owned businesses are also sought-after targets for strategies looking to buy. We asked Nordic Capital partner Fredrik Näslund what is driving growth and where the opportunities are.

Q Technology is a very broad term. How do you define it?

Nordic Capital has been investing in this sector for over 15 years now with a focus on software and payments. Within software we zoom in on application software which includes analytics and business intelligence, content services, customer experience and CRM, and enterprise resource planning. We also look at infrastructure software and vertical-specific software such as fintech, le-

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gal tech, health tech, etc. The Nordic area benefits from specialist clusters of some of these sub-segments, including payments, and Nordic Capital focuses on finding opportunities where we can create growth at the company level.

Q Which segments are growing fastest?

Application software businesses are generally growing at around 10-15 percent. But you can also find sub-segments which are growing faster. The subsector of enterprise planning, where Nordic Capital's portfolio company Board International is active, is for example growing at around 30 percent.

Board is the global leader in planning tools. It provides software that sits above all of a company's systems and collects data ranging from HR to financial planning and budgeting, to ERP and operational planning.

The global retailer H&M uses Board for their staff planning in all 6,500 stores. The Board software allows businesses to collate data on, for instance, sales patterns, bookings, pipelines and even the weather, and to conduct advanced predictive analytics on the back of historical numbers.

Payments is another fast-growing area where we are investing.

Q What is driving this pace of growth in general across the tech sector?

Big themes are automation of work previously completed manually or semi-manually

and the general digitisation of the corporate world. Digitisation is opening a whole new way of doing business using low to no-touch technology. That is a very important trend.

Another is automation where software tools can perform tedious work previously done by human hands. We see this in, for example, the healthcare sector.

The customer journey is changing. In payments, customers can go online to be onboarded through a low or no-touch process and conduct transactions. For this, businesses need an electronic identity tool, as well as an online document handling and storage solution and other automated customer experience tools.

This means software for some specific industry verticals is growing very fast, for example financial services and professional services, including for management consultants and law firms. Both are using more automated software to share documents securely and populate templates. Utilities is another sector behind the curve, as – to some extent – are the construction, real estate and healthcare sectors.

Q Are you always looking at payments with a tech angle?

Nordic Capital has done a lot in payments: three merchant-facing platform investments, always with a high degree of technology. The first was Point International, which was a reseller of payment terminals where Nordic Capital invested a lot into the software that runs the terminal and created one of the largest global software solutions for payment terminals. This was one of the best deals ever for Nordic Capital.

In addition, the investment in Bambora was hugely successful. We worked closely with the management team to digitise the customer onboarding and increased intake from 200 to 3,000 customers a month.

During the holding period, Bambora invested into new technology and employed more than 170 new developers. It hit the market with new products and also initiated a strong business and performance culture. Nordic Capital helped Bambora to focus on sales excellence and make 13 add-on acquisitions.

Three years later, in 2017, Bambora was exited to Ingenico, who approached us. We always map out potential buyers and exit mainly to strategic buyers. That is part of our playbook. And the business continues to grow rapidly within Ingenico. We are proud

Q How does your team keep up with technological advances? Is disruption more of a challenge or an opportunity?

We have a network of tech experts that are in touch daily with developments. Nordic Capital is a typical growth investor. For us, disruption is more of an opportunity than a threat because we seek those kinds of opportunities. We look for companies on the non-legacy end. Technology is significant to the end-game but inbetween it is about how to run a company, how to grow, how to spend the money and in what order, how to build out a sales force, how to develop leads from a webpage into a qualified lead in the most efficient way, how to use the software to do that, etc. Our team, chairmen and group of advisors are very experienced and know how to support the companies in each area.

and happy for that and it demonstrates that Nordic Capital builds solid businesses.

With Trustly, a direct payment provider, Nordic Capital is investing into and assisting in spreading technology to the market. Trustly is growing rapidly. Its network includes more than 4,000 banks in Europe, it reaches around 350 million European consumers and it just completed the add-on acquisition of Silicon Valley-based Pay-WithMyBank, which increases the reach to over 600 million consumers in both Europe and the US.

Trustly is headquartered and regulated in Sweden but within the EU it can passport its payment institute certification. This is an area where the EU has been very active. Payment Services Directive II instructs banks and financial institutions to open their infrastructure to other regulated entities if the consumer grants permission and this is

something we have taken advantage of with Trustly from the beginning.

Q Did you invest in Trustly ahead of the EU directive?

Three or four months before. Regulation is fertile ground for software opportunities. Looking forward, the EU will be very active in authentication and identification and the Nordics is a leader in this growth area.

With new legislation, secure solutions will become even more important. In April, Nordic Capital acquired Norwegian digital identity pioneer Signicat. Five of their largest clients are other Nordic Capital portfolio companies. We tracked and assessed the success of Signicat for a long time before acquiring the company.

Q How do you source deals?

Nordic Capital focuses on core sectors where we have deep experience, long-term involvement and a deeply-rooted local presence which builds relationships with sellers, board, management teams and advisors. We take a long-term approach to understanding potential investment opportunities, sometimes tracking a business for several years before acquisition.

We have a dedicated T&P team of around 15 people internally who monitor between five and 10 companies each in our shadow portfolio. This is a structured way of identifying around 100 companies that would fit Nordic Capital's investment strategy and focus on growth. They constitute most of our pipeline and provide most of the completed transactions. Trustly is one example – Signicat is another – of a deal that surfaced through this process.

In addition, we have built a network of advisors, CEOs, chairmen and tech specialists who present opportunities to us. Every

“Digitisation is opening up a whole new way of doing business using low to no-touch technology”

opportunity is filtered through an established list of up to 30 KPIs covering the business model through to the business's positioning in the value chain, growth of the end market, level of recurring revenue, customer churn, employee and customer KPIs and the degree of customer upsell.

Q You have been investing in tech for almost 20 years. How have you seen entry multiples change and what do they look like today?

They go up and down and lately they have been mostly up. It is a bifurcated market. The companies that are really strong performers with a solid market position and non-legacy technology tend to trade for a high multiple and the less-loved companies may not even trade at all.

For the fast-growing companies we look at, the multiples are in the teens and above. Trustly grew 90 percent in 2018. Board is growing at 100 percent. People are willing to pay for quality. Nordic Capital also buys companies that are growing at 5-15 percent and then the multiples are more in the lower teens.

Q That puts some pressure on you to create value. How do you go about doing that?

Nordic Capital's approach to ownership includes an industrial mindset and emphasis on operational contribution which generates most of the value creation. Growth is accelerated by helping portfolio companies expand into new markets and geographies, develop their product range, enter innovative industrial combinations and strategic-reposition.

Our T&P playbook maps the five key processes in a technology business: commercial excellence; research and development efficiency; product management; people and performance; and what we call 'fuel for growth', which is related cost-efficient scalability. In addition to our team and our network of chairmen and advisors, we also have functional and operational experts that we call 'black belts' deployed in various executive roles.

For example, in commercial excellence or go-to-market applications we address questions like how to expand the sales force, how much a business should pay a salesperson, what's fixed, what's variable, etc.

We have expertise with extensive pricing experience that help management address

"Companies that are really strong performers with a solid market position and non-legacy technology tend to trade for a high multiple and the less-loved companies may not even trade at all"

how to price a product and repackage it. We love companies with a strong product offering to which we can add our commercial acumen and push.

Q How do you define 'fuel for growth'?

'Fuel for growth' is the fifth chapter in our playbook. We always want to see the portfolio businesses scaling, and an important element is expanding internationally.

If a company is growing staff with 30-40 percent every year, we always take a step back every 18 months to make sure the business employs the right people and has the right structure. This step back will distil the organisation and make it stronger. Focus is key!

Q What is your role in R&D?

Creating an efficient R&D engineering process is often done in conjunction with product management. Product management is the gearbox between sales on one hand and engineering on the other.

If you have a very strong product management function, they will pick up what sales want to sell and provide a roadmap to R&D detailing what they should focus on and when and how those products should be developed. That's key. Our goal is to improve R&D efficiency by 30-40 percent.

On the product management side, our goal is to shorten the time to market. A key KPI is increasing the amount of time engineering spend on a new product to more than 50 percent.

Q And people?

People are at the heart of business and their performance is one of the most direct contributors to success. For this reason, strategic HR and portfolio talent development is a key element of Nordic Capital's approach to ownership excellence and applied throughout the investment cycle to support management.

An excellent example is Bambora where people and performance was a key to improving the business culture. We've drawn on that successful experience and have introduced new KPIs and more experts.

For instance, Cint, which is a market research technology business, has recruited many people and spent a significant amount of time on the ground assisting management in the US to bring in new salespeople and establish new sales centres. The number of employees has increased from 140 at acquisition in 2016 to 285 today, including additional staff from the add-on acquisition in August of US-based consumer sampling platform P2Sample.

Cint has always had a very efficient R&D team. We have spent a lot of time on the product management function in order to scale it globally. Local knowledge is important. We have helped to adapt the Cint product to the US market and sales have risen from less than 5 percent in the US to more than 60 percent.

The business turned over around \$30 million when Nordic Capital bought it in 2016. Three years later it is around \$100 million. Organic growth has accelerated during the ownership period from 20 to 35 percent, an almost 50 percent increase. It has been spectacular.

Now we are assisting the teams in Trustly, Macrobond and Board to build out in the US. ■

Fredrik Näslund is partner at Nordic Capital Advisors, head of technology and payments and head of Norway and Denmark. He has played a leading role in building Nordic Capital's position in the technology and payments sector, including companies such as Point, Bambora, Itiviti, Cint and Trustly. He has been with the firm for almost 20 years and was previously part of the management team at Capio.

Q&A

*Tech is bigger business than ever and completely reshaping the market, says **Brijesh Jeevarathnam**, Adams Street Partners' partner and co-head of global venture fund investments*

Q How do you get exposure (and measure allocations) to technology?

A Technology is really pervading every industry vertical. Tech used to be an industry vertical like healthcare or consumer and in the space of a decade it has moved from a vertical to a horizontal. When we look at portfolios, we are hard-pressed to find areas where technology is not playing a meaningful role or a massive, transformational role.

In large buyouts we see firms using technology to drive value creation in their portfolio companies in a fundamental way. In mid-market growth equity, for example, there are managers using cutting edge technologies like robotic process automation (RPA) to automate routine tasks across their portfolios, in anything from HR to consumer businesses, to drive revenue and to reduce costs.

Obviously, venture is predominantly technology-driven or technology-enabled, and venture has become a global business. 20 years ago, venture was mostly a US asset class with offshoots in Europe and Israel, but now there are great opportunities coming out of Europe in fintech and digital media; China is really leapfrogging the US in some areas; US venture has stayed robust; and India and Latin America are quickly emerging.

Q Where is there most opportunity to put capital to work?

A There are more opportunities to invest in technology around the world than ever before. We have seen an expansion of the opportunity set by geography, by investment stage and by sector.



Previously, technology exposure tended to be mostly venture-focused, but now if somebody wants technology but no early stage exposure, we can give them exposure to more mature technology assets through buyouts and growth capital, which wasn't as prevalent 10-15 years ago.

There are also many more investable technology sectors now than there used to be: on the enterprise IT side with the cloud and cybersecurity and on the consumer retail side, too, where millennials and Generation Z are looking at very different consumption patterns and work behaviours than prior generations.

Everything is being disrupted and reshaped by technology. And we have seen the emergence of frontier technologies like spacetechnology and esports, which have started to produce large venture-backed companies.

Q How is tech investing impacted by macroeconomic cycles?

A Every large company is facing some existential threat from start-ups and looking at some degree of digital transfor-

mation. A decade ago, when we looked at M&As of our technology portfolio companies, the buyers would be large technology companies like Oracle, Microsoft and Cisco. Today, those buyers are still there, but so are the offline/old-world companies looking to acquire tech assets: companies like Walmart, McDonald's or General Motors.

The current innovation cycle is strong and will last another 10-15 years, and that is distinct from the capital markets cycle, which people expect may take a turn at some point over the next one to three years. The capital markets cycle impacts technology principally through late-stage valuations, but at the earlier stage, for new company creation and early stage venture, it doesn't matter.

Q What is the impact of tech companies staying private for longer?

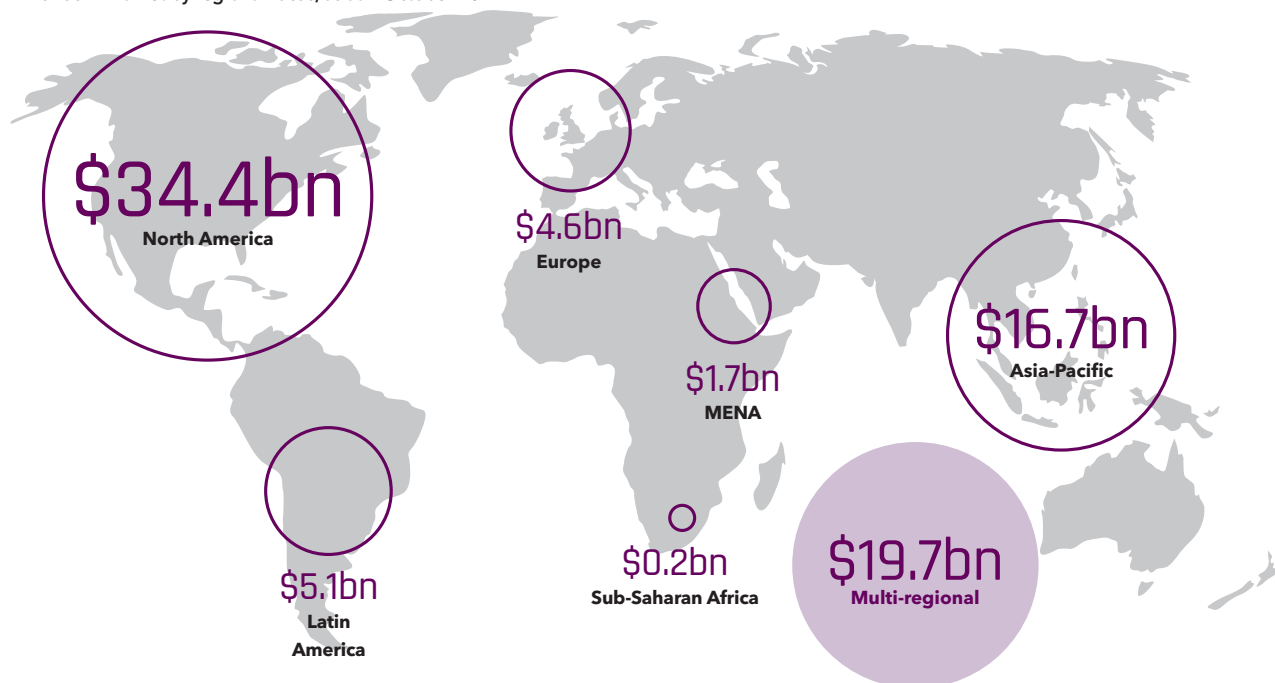
A Now, venture-backed companies tend to stay private for about 10 years, compared with roughly five to seven years historically. That trend of companies staying private longer will likely sustain, because the addressable markets for these companies have got so much larger and they prefer to tackle their scaling challenges while still in the private markets. Also, the supply of growth capital has been readily available.

Private companies do present opportunities to realise early stage investments in the growth phase and we have seen a few examples of growth investors taking out early stage investors through a secondary when a large growth investment round is raised. So, there is still some liquidity for LPs and GPs. ■

Key statistics on global technology investment

North America continues to account for the most – and the largest – tech funds, although Asian activity is significant

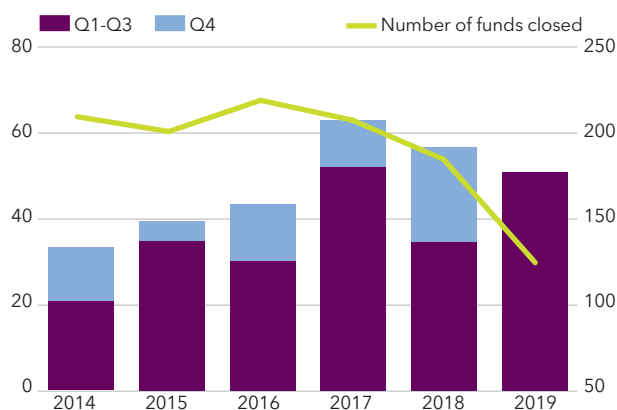
Funds in market by regional focus, as at 1 October 2019



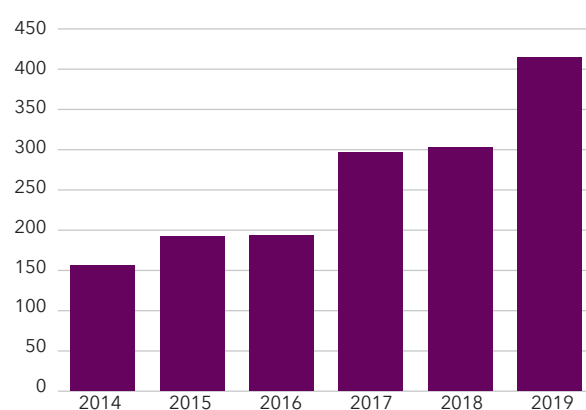
The largest tech funds in market, as at 1 October 2019

Fund	Manager	Head office	Target size (\$bn)	Regional focus
Sequoia Capital Global Growth Fund III	Sequoia Capital	US	8.0	Multi-regional
SoftBank Innovation Fund	SoftBank Group Corp	Japan	5.0	Latin America
Accel-KKR Capital Partners VI	Accel-KKR	US	2.6	Multi-regional
Next Orbit Ventures II	Next Orbit Ventures	India	2.0	Asia-Pacific
K4 Private Investors	K1 Investment Management	US	1.5	North America
Baidu Fund Partnership	Baidu	China	1.0	Asia-Pacific
China Media Creative Industrial Investment Fund II	China Media Capital	China	1.0	Asia-Pacific
KPCB Digital Growth Fund III	Kleiner Perkins Caufield & Byers	US	1.0	North America
Think3 Fund	Think3	US	1.0	North America
Strategic Growth Europe	Providence Equity Partners	US	0.8	Europe

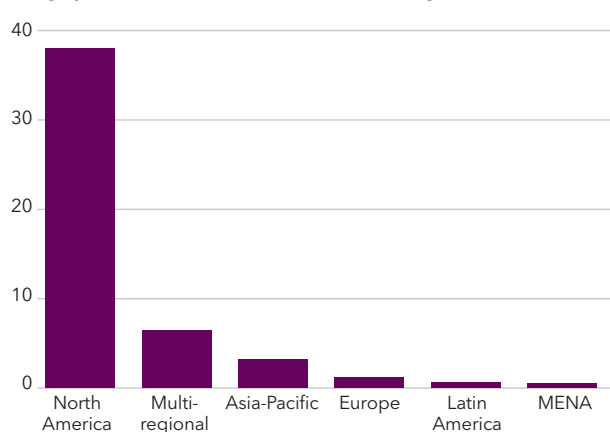
Private equity tech fundraising since 2014 (\$bn)



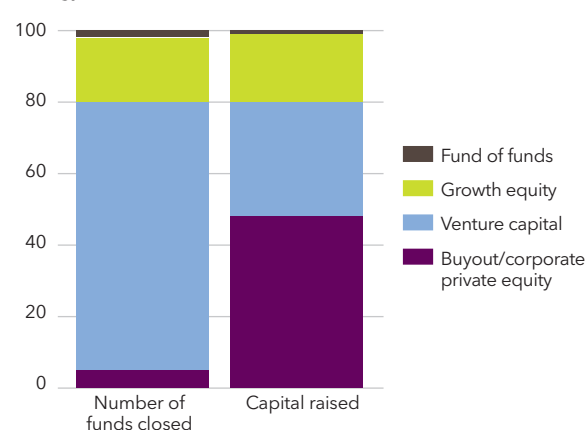
Average size of tech funds closed since 2014 (\$m)



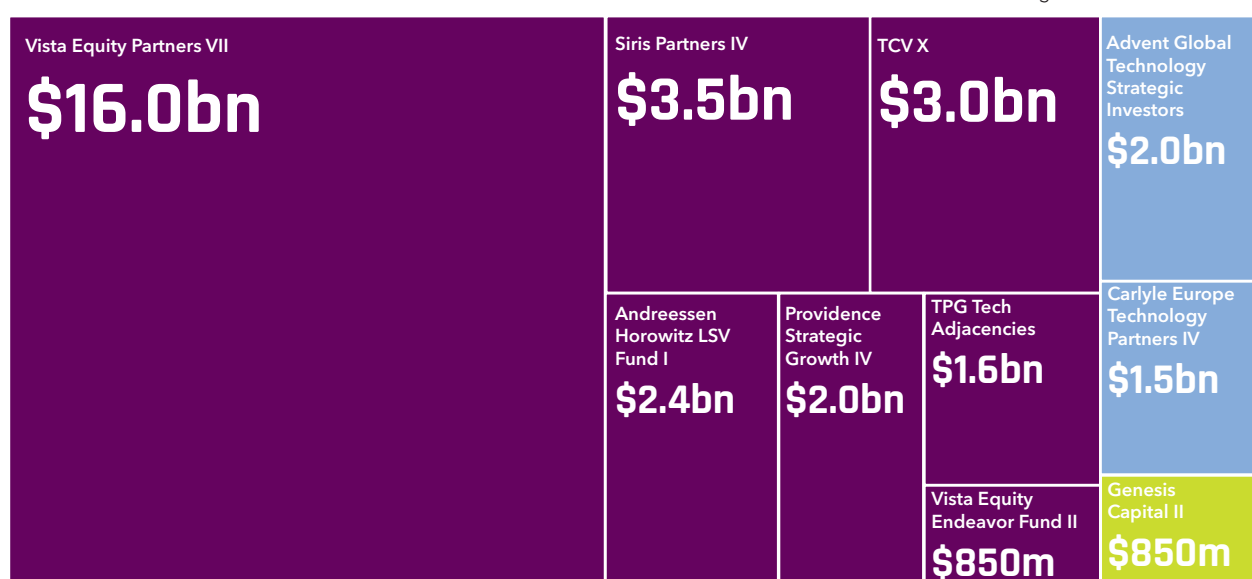
Geographic focus of Q1-Q3 2019 tech fundraising (\$bn)



Strategy breakdown of tech funds closed in Q1-Q3 2019 (%)



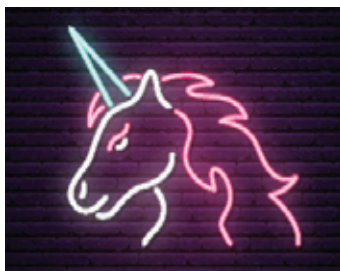
Geographic focus of Q1-Q3 2019 tech fundraising



Source: Private Equity International

30 January: The hunt for unicorn exits

In a blog post at the start of the year, Founder Collective took a one-two uppercut at vanity valuations in venture capital. With \$526.1 billion in value concentrated in 140 or so private companies, the sector has swelled hugely. The test will come when these companies try to launch IPOs. PitchBook figures show the median pre-money valuation of a late-stage company in the US in late 2018 was \$325 million, while the average exit for a venture-backed company was just \$141 million.



11 September: Vista's record \$16bn fund

Vista Equity Partners set a record for its Fund VII, the largest tech-focused fund raised by an independent firm. Here are five takeaways: The fund's hard-cap was increased from \$15 billion; Vista's commitment could rise from 2 percent to 4-6 percent; Vista has been coming back to market earlier since its 2011-vintage Fund IV; Exits have fallen from 4.7 years to three; The fund had more than 30 investors.

In the news

Some of the top tech stories published this year in PEI and sister publication VCJ



16 January: PE firms to create senior tech roles within five years

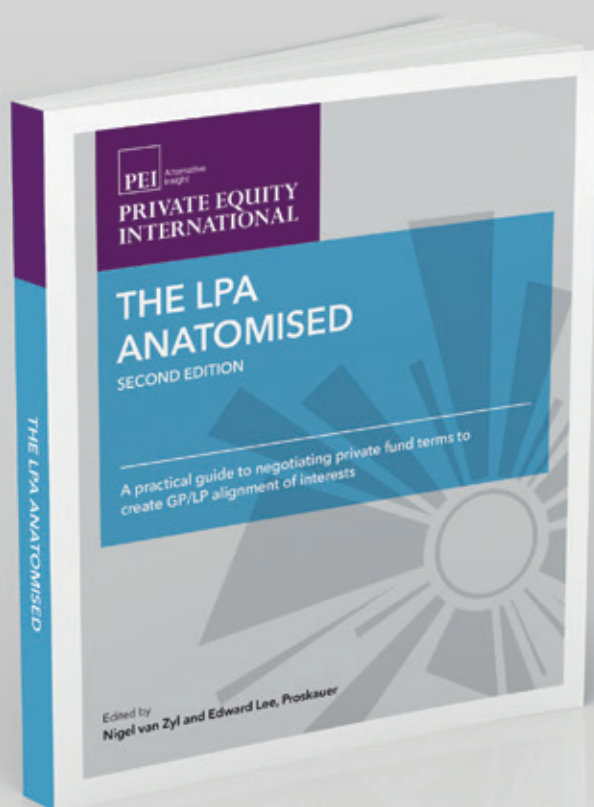
A majority of private equity firms will hire top tech talent over the next five years, according to research by Intertrust. A survey found 86 percent of private equity professionals believed firms would appoint senior tech leaders at C-suite level or equivalent with mandates to drive change. The survey also found emerging technologies such as blockchain, robotics and artificial intelligence are increasingly at the forefront of private equity professionals' minds. This reflects growing interest in using AI to more effectively handle large volumes of investor queries.



6 May: VCs keep on truckin'

There's an old joke in the road haulage business: everything on the planet, other than babies, is delivered by truck. Trucking may be one of the biggest industries in the US, but it is highly fragmented and a technology backwater, with brokers working via phone and fax to connect shippers with truckers to haul freight. Venture funds believe tech can help tackle the industry's myriad challenges. Startups are already solving one of the biggest challenges: backhaul.

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- Case study: How to handle a challenging LPA negotiation.
- A comparison of LPAs in the US, Europe and Asia.
- How to structure and negotiate separately managed accounts.
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