UNION SQUARE ADVISORS

2019 Outlook

Assessing Opportunity in a Shifting Market

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Union Square Advisors is a leading technology-focused investment bank that supports clients on their most important strategic transactions.

Our team is led by former heads of the world's leading technology investment banking practices and professionals with deep experience in mergers and acquisitions, corporate development, and agented private capital financing services.

Our business centers on Software, IT Infrastructure, and Internet & Digital Media. Since our founding in 2007, we have completed more than 100 transactions representing more than $95 billion in value.

Overview

Software

Enterprise Digital Transformation
Digitization of enterprise workflows and increasing cloud adoption within the enterprise

Big Data and Advanced Analytics
Data explosion continues to accelerate, augmented by next-gen analytics including AI and machine learning

Morphing Security Landscape
New paradigms around threat detection, protection, mitigation and remediation

IT Infrastructure

Converged Solutions Reach Critical Mass
Scalable systems that fit the needs of next-gen applications and data centers

NPM/APM, Visibility and, now, ITOA
Once distinct silos are converging as visibility becomes increasingly important

IT-as-a-Service Disrupts Layer 4 -7
IT stack is increasingly becoming software-based

Internet & Digital Media

AdTech Meets MarTech
Enterprise players are building comprehensive solutions via strategic acquisitions

Mobile-First Approach
Strong monetization and user engagement across multiple key domains

Vertical Marketplace Models
Network effects crucial to adoption/long-term success

Carter McClelland
Co-Founder & Chairman

Ted Smith
Co-Founder & President

Welcome

Assessing Opportunity in a Shifting Market

Dear Clients, Colleagues, and Friends:

At the risk of understatement, what a year for Tech in 2018! We anticipated (and even predicted in our 2018 Outlook) that there would be significant M&A and financing activity, but the levels we saw outpaced our most optimistic forecasts. Strong corporate earnings growth and balance sheets, as well as continued abundant capital available in private equity, growth equity and venture funds, drove a record year for technology transactions.

Both large corporate acquirers and financial sponsor buyers made their mark with sizeable deals and a slew of mid-sized and smaller transactions. Growth in year-over-year deal activity was extremely strong across the board in Technology M&A, with total volume in 2018 rising by 55% to $523B. At the same time, the Tech IPO market also showed continued strength, with approximately $20B in new equity capital raised (up a whopping 60% over 2017 levels). However, the total number of Tech IPOs (38) was just slightly ahead of last year (36) – implying meaningfully larger average deal sizes in 2018. With Uber, Lyft, and several other very large tech companies poised for 2019 IPOs, the amount of total capital raised and average IPO deal sizes likely will continue on this upward trend.

To those who took part in 2018's transaction bounty – whether as buyers, sellers, or investors – we congratulate you on your successes. To those who are contemplating near-term deals, we say, "Press on!" We believe there still will be many fruitful transaction opportunities in 2019, despite the fact that valuations in numerous tech segments remain at or near all-time highs.

That said, it is only natural to hear the little voice in your head whispering, "How long can this go on?" especially in light of recent volatility. The recent bull market, which began its historic run in spring 2009, has been the longest on record since World War II. It is easy to understand why there is so much buzz about the inevitable correction as we watch the market swing +/- 500 points in a day. But the big question remains: When will it really "hit," and by how much?

Optimism Outweighs Uncertainty

It's unwise (for us, at least) to try to call the market; so perhaps the best response to the "When?" question is to point out that bull markets generally don't die of old age. That may be conventional wisdom, but it's grounded in quantifiable truths. Bull markets fade when overall favorable conditions erode. We believe there will be continued volatility in the near term, and we recognize the real possibility of a sustained correction to bring valuations more in line with historical norms. Nevertheless, we expect 2019 will be an active M&A and financing market for multiple reasons.

We believe conditions remain promising; but we are mindful of potential disruptors.

Equity and debt capital remain abundant, with new funds continuing to be raised at a significant pace. Interest rates, while slightly higher than a year ago, are still very near historical lows. Virtually all tech market participants continue to seek out new acquisition and investment opportunities (fueled, in part, by a "use it or give it back" mentality). Growth in most tech continues apace, and that measure remains the primary criterion for establishing value.

Even the results of the 2018 midterm elections give us hope. The new reality of a divided Congress suggests that political gridlock will be the norm for the next two years. While that's understandably frustrating for many who seek meaningful legislative progress, it also implies a much lower likelihood of sweeping changes that could derail business plans and execution. A headline writer for USA Today put it best: "Forget the Blue Wave. Behold the Purple Puddle."

While these factors give us confidence for a busy year ahead, we are mindful of potential disruptors like interest rates, trade wars, policy changes, shifting consumer sentiment, and a host of competitive threats. However, our practice is to help our clients weigh these against their strategic imperatives and to work with them to formulate scenarios that support their achieving short- and long-term goals.

That's really what drives us at Union Square Advisors: our mission to provide clear, timely advice rooted in deep domain knowledge and decades of transaction experience. As always, we are very grateful for the opportunity to work with each of you, and this annual outlook report is an expression of our commitment to being your advisor of choice. We look forward to being in touch, and we wish you all the best for a healthy, prosperous, and transformative 2019.

Carter McClelland
Co-Founder & Chairman

Ted Smith
Co-Founder & President

2019

Mega Trends

Nonstop innovation, disruption, growth, and consolidation are what define the technology industry as a whole. It's our business to track these dynamic forces and their impact on key verticals. However, we also keep an eye on broader marketplace developments that have the power to influence how buyers and sellers think and behave. Here are some key trends we are watching in 2019.

1

Super Abundant Capital

The tech M&A market is brimming with cash; the top five technology companies alone have nearly $2 trillion available for transactions. Likewise, private equity firms, family offices, VC funds and non-traditional buyers all have sizeable pools of capital to deploy. All that cash and the pressure to put it to work are contributing to higher valuations. Sellers can readily raise minority capital to support growth and build value for a future sale, or take even more money off the table today in a change-of-control transaction. Motivated buyers have the means to make stronger offers or, if necessary, engage in bidding wars. **The takeaway: Double down on due diligence to reach accurate valuations, but expect fierce competition for highly sought-after assets.**

2

Evolving Data Ecosystems

According to IBM estimates, 90% of the data in the world that existed in 2016 was created in 2015. Looking forward, analysts anticipate that by 2020, the digital universe will be 40 times larger than it is now. That translates into a lot more data for businesses to pore over. The science of data analytics is helping reduce costs, increase efficiency, and anticipate customer needs. But every day brings more data from a multitude of sources and a renewed urgency to gain insights that improve performance. **The takeaway: Next-generation solutions that derive value from data with artificial intelligence and machine learning technologies will separate themselves from the pack.**

3

Security and Identity in a Hyper-Connected World

The arrival of new technologies often gives rise to new security challenges for both businesses and consumers. Those challenges are multiplied when new technologies are deployed across hybrid IT systems that span enterprise data centers, public and private clouds, and business partner environments. And with the advent of large Social Media networks and the Internet of Things, the surface area for attacks is increasing exponentially. Like it or not, it's now all one, big interconnected and vulnerable web. **The takeaway: Security vendors who correctly understand the evolving threat environment and deploy next-generation technology, such as digital intelligence and machine identity protection providers, will have significant opportunities in 2019 and beyond.**

4

Digital Transformation

For years, enterprises have been slowly working to digitize their assets, workflows, and processes; however, the phenomenon of digital transformation is just now hitting its stride. The confluence of cloud-based deployment methods, AI/ML engines to accelerate adoption/performance, sophisticated analytics to create meaningful feedback loops, and new AR/VR visualization technologies, will enable companies of all sizes to more readily convert from legacy systems to secure and scalable digital alternatives. 2018 transactions such as DocuSign's acquisition of Spring CM and Dassault Systèmes' majority purchase of Centric Software reflect the growing importance of the digital transformation agenda for enterprises. **The takeaway: Digital transformation is about continuous evolution, not one-time substitution; and now the momentum is growing rapidly.**

5

Recalibration and Preparation

While the environment for M&A and financing activity appears favorable for the near term, there are new dynamics to consider: escalating trade tensions with China, tighter restrictions on foreign acquisitions of U.S. companies/assets, complications over Brexit, and rising interest rates. All of these may have a meaningful role to play in increased market volatility. These factors should prompt deep questions from boards and investors evaluating strategic and investment options, and should inform the need to be nimble in response to shifting market dynamics. **The takeaway: You can't predict the future, but you can prepare for it. Initiate candid, senior-level conversations about strategy and capitalization early and often.**

Wayne Kawarabayashi
Partner and Head of M&A

Playing Offense: Can 2019 Be As Active As 2018?

In a decade of consistently strong tech M&A market performance, 2018 will be remembered as a blockbuster year. While it was a year of exuberance for acquisition activity, it was also a year that experienced wild market swings in the second half, driven by growing concerns that the U.S./China tariff war will cause the global economy to slow. It was a year that generated both hopes and fears for what's to come.

To understand why, let's take stock of the rush for mega-deals that defined 2018. Large tech strategics went on the offensive, making big bold moves across virtually all sub-verticals, and adding important new capabilities to make themselves more competitive. Deals above $1B were especially numerous, growing 99% to $448B in volume through December 2018; of these, the number of deals above $5B grew at a whopping 135%. That activity was fueled by economic growth, lower taxes in the U.S., and abundant cash from corporate balance sheets and private equity and venture funds.

135%

Deals above $5 billion grew by 135%. These bold moves redefined companies and verticals

A Growth Mindset

In spite of rising valuation multiples, companies from all industries continued to pursue technology assets as a path to enhance revenue growth and improve offerings to their customers.

SAP bought Qualtrics for $8B in the second-largest ever acquisition of a software as a service company and CommScope purchased Arris for $7.4B in order to build share in the 5G, fiber and Internet of Things markets.

Other companies pursued a different path for growth. They sold off specific tech assets in order to raise capital and focus on business units with greater long-term potential. Notably, speech-recognition software provider Nuance Communications used this "shrink to grow" strategy in the sale of its Document Imaging division to Kofax for $400M. Nuance also recently announced it will spin off its Automotive division.

High Stakes Transformations

Shapeshifting was another hallmark of 2018, as companies made transformative moves that redefined themselves and their verticals. For example, IBM made a big play to accelerate hybrid cloud adoption by acquiring open source software company, RedHat, for $34B. Likewise, semiconductor giant Broadcom made a bold move buying enterprise IT management software company CA Technologies, for $18.9B.

Equally important has been the pursuit of capabilities to rapidly build and deploy applications. Salesforce acquired MuleSoft for $6.5B so that it can offer customers the means to connect enterprise apps, data and devices across any environment and Microsoft acquired leading developer software platform Github, for $7.5B.

Strong Momentum, Rising Headwinds

In 2018, year-over-year transaction volume was extremely positive across the board for tech M&A. It will be interesting to see if 2019 will sustain the level of activity. Growing concerns over the impact of the U.S./China trade war, Brexit, rising interest rates, market volatility, and overvaluation of U.S. tech stocks will likely influence the pace and timing of investment decisions.

Tech M&A[1]

Sales of Venture-Backed Startups[3]

U.S. Technology IPOs[2]

Private Placement Activity[3]

Sources: (1) 451 M&A Knowledge Base, 12.31.18 (2) FactSet as of 12.31.18 for companies that trade on the Nasdaq
(3) CapIQ, PitchBook, ThomsonOne as of 12.31.18

Further, companies took advantage of improving their marketing and ecommerce offerings. Adobe made some big splashes by acquiring marketing technology firm Marketo for $4.8B, and open-source e-commerce platform, Magento for $1.7B, while AT&T acquired advertising marketplace company, AppNexus for $1.6B.

Lastly, financial sponsors were equally busy in 2018. Veritas Capital and Elliott Management partnered to acquire Athena Health for $5.7B and combine it with Veritas's Virence Health to create scale in connected provider networks. Thoma Bravo continued consolidating assets in the security space, acquiring Imperva for $2.1B and Veracode for $950M. Blackstone, T.H.Lee, Carlyle and KKR all did $5B+ deals themselves, acquiring Thomson Reuters' risk business for $20B, Dun & Bradstreet for $6.9B, Sedgewick Claims Management for $6.7B, and BMC Software for $8.4B, respectively.

Key Areas for M&A and Investment

In 2019, look for large corporates making large and midsized strategic moves

- **Cloud Transformation**
- **Internet of Things**
- **FinTech and Mobile Payments**
- **Converged IT Solutions**
- **Cybersecurity and Network Visibility**
- **eCommerce**
- **Healthcare IT**
- **Mobility Solutions**
- **Advertising / Marketing Technology**
- **Machine Learning, Artificial Intelligence, Intelligent Operations, Big Data/Data Analytics**
- **Augmented Reality & Virtual Reality**
- **Robotic Process Automation**

Implications for 2019

With so much cash on corporate balance sheets and in the coffers of private equity and venture capital firms, one would expect significant ongoing M&A and financing activity in 2019. However, substantial storm clouds are brewing that could impact the level of activity in the year ahead.

For example, the U.S./China tariff war is having a chilling effect on the capital markets and likely will impact the growth of the global economy if it persists. Brexit also looms large; at this point, it's unclear how the UK's withdrawal from the EU will be structured – or if it will happen at all. Further, in the U.S., the sugar high from tax cuts is subsiding and recent interest rate hikes have contributed to declines in the capital markets. Falling oil prices may exacerbate market volatility too. Concerns over the use of social media for election meddling and violations of user privacy may give rise to new regulations that could have a dampening effect on some of the largest tech companies. Lastly, populist sentiment, concerns about national security interests, and worries about intellectual property theft around the globe are making cross-border M&A and investment transactions more challenging to prosecute.

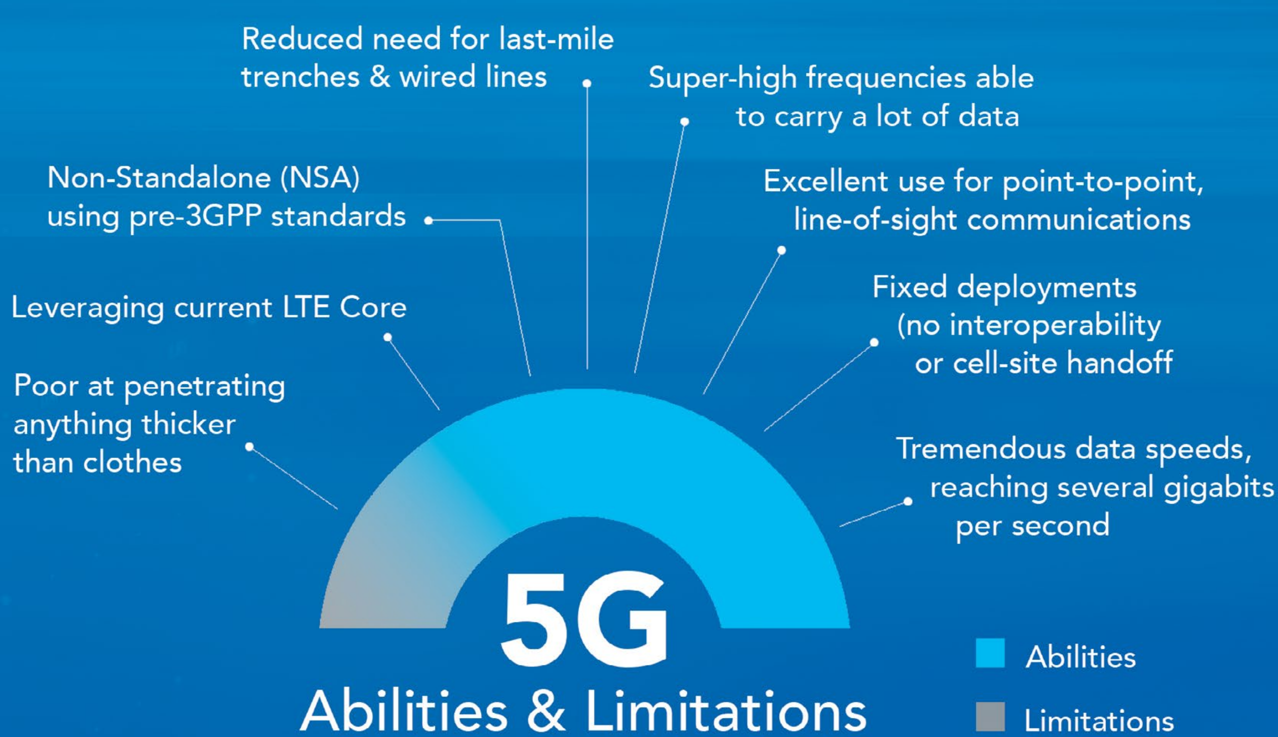
As a result, should the markets remain volatile, strategic buyers will look to be more selective, chasing quality assets and being judicious about valuation. At the same time, it is likely to cause both publicly traded and privately held sellers to become more apt to raise capital while they can or sell for still-attractive valuation multiples despite the recent tech market sell-off. The market volatility also may cause some of the private tech behemoths (e.g., Uber and Lyft) to come to market sooner – and a few of the "smaller" Unicorns may opt to sell instead of pursuing an IPO. Hedge fund activists will capitalize on the market volatility and will be a driving force to initiate campaigns to encourage companies to divest or spin-off underperforming or disparate assets to refocus on their core businesses or return capital to shareholders. Lastly, the rise in nationalism at the expense of globalism will require buyers and sellers to fully evaluate CFIUS and other regulatory review processes when pursuing cross-border M&A.

What's in store for tech M&A activity in 2019 will clearly be impacted by macro factors and the capital markets. Technology will continue to permeate multiple industry sectors, and it only gets more important to the U.S. and world economies with each passing year. Therefore, it is a question of relativity: Can 2019 be as active as 2018, the recent high water mark, given the brewing broader market headwinds?

In these volatile markets, entrepreneurial founders, boards, investors, corporate acquirers and PE firms should proactively consider their options for capital raising, acquisitions, divestitures and exits vs. the status quo, as some alternatives may not be readily available if the market environment shifts unexpectedly. Frequent conversations, at the board level, to evaluate alternatives may make sense if one decides the time for partial or full liquidity is ripe. Likewise, potentially pursuing exploratory dialogue with growth investors, corporates, and private equity may prove beneficial.

5G Wireless Connectivity

In the coming years, 5G wireless networks and services will supersize the Internet of Things and generate exciting new business cases. However, a number of key hurdles must first be cleared including: adopting industry standards, securing suitable radio spectrum from government, building costs, and deployment logistics.



Source: Visual Capitalist: "5G: The Next Generation of Mobile Connectivity" – 08.07.18

Paul Inouye
Partner and Head of
Internet & Digital Media

Expect more consolidation plays that enable the Goliaths to disrupt large profit pools

Deep Pockets, New Frontiers

One unmistakable trend in the internet and digital media space from the past few years has been the willingness of large strategic players to pursue big, transformative deals. Increasingly, it is becoming a Goliath vs. Goliath world in which the biggest players seek new frontiers for growth. These Goliaths include both large cap internet players as well as traditional large cap players from the media, telecom and retail sectors. Financial sponsors also remained very active in driving a number of notable transactions in 2018.

Amazon continues to be one of the most active players, finding new, growing profit pools to enter and disrupt. For example, it followed up its $14B purchase of Whole Foods in 2017 with its $1B acquisition of PillPack, the online service that organizes and delivers drugs to your door. With this acquisition, Amazon moved to disrupt the retail drugstore business and potentially paved the way to future deals in the health-care industry. In a similar market-expanding move, Amazon acquired Ring.com for $1B, which helped it enter the home security space and further its presence in the connected home (anchored by Alexa).

Other large internet competitors that were active in the 2018 M&A market include Paypal, which acquired IZettle for $2.2B and Hyperwallet for $400M, and Apple, which acquired Shazam for $400M to expand its music service business.

Large traditional media strategics also were active in M&A transactions that provide complementary services to their core businesses. These traditional players include AT&T which acquired AppNexus for $1.6B, IPG which acquired Acxiom marketing services for $2.3B, and SiriusXM which acquired Pandora for $3.5B.

Lastly, financial sponsors continued to be active and invest in strategic themes such as Adtech/Martech consolidation (Vista Equity's majority acquisition of IAS) and vertical marketplaces (Permira's acquisition of Wedding Wire and subsequent merger with XO Group).

From a vertical sector perspective, the AdTech and MarTech sector continued to witness several large acquisitions in 2018. Notable transactions included Adobe's $4.75B acquisition of Marketo and its $1.7B acquisition of Magento, IPG's $2.3B acquisition of Acxiom Marketing Services, and the aforementioned Vista/IAS and AT&T/AppNexus deals.

Going forward, we anticipate more consolidation plays that enable the Goliaths to expand their profitable internet capabilities and services. We expect to see activity in the Adtech/Martech, Ecommerce, Over the Top Services, and Vertical Marketplace sectors.

In 2018, there were approximately 7 billion IoT devices in use. As 5G networks proliferate, that number is expected to grow to 10 billion by 2020 and 22 billion by 2025.

5G and The Internet of Things

In 2019, the first 5G wireless networks will hit the market. While this is a milestone, it is important to keep perspective amid the hype that is sure to come.

To be sure, 5G has several important advantages over prior generations of wireless technology: (1) greater speed, which means it can move more data, (2) lower latency, which makes it more responsive, and (3) the ability to connect many more devices at once.

The future of the Internet of Things (IoT) will be closely tied to the development of 5G. The superior connectivity and data flow it provides will enable the next wave of innovations, from self-driving cars to remote healthcare powered by virtual reality. To put that in perspective, in 2018 there were approximately 7 billion IoT devices in use worldwide. As 5G networks mature, that number is expected to grow to 10 billion by 2020 and 22 billion by 2025.[1]

Obviously, this potentially sets the stage for the IoT to become a hotbed for investment and consolidation. But before we get there, there are some realities to face – chief among them is that new 5G networks will be costly to build and take years to deploy. Also, new data security measures will be needed to ensure that the massive amounts of IoT data flowing through 5G networks stays protected. Therefore, the volume and focus of M&A activity in the near term will likely center on companies that have deep intellectual property and offer leading infrastructure and consumer services, such as home security and video monitoring.

Jace Kowalzyk
Partner and Head of
IT Infrastructure

CIOs need new tools to monitor operations, comply with regulations, enhance security, and manage costs

Managing Complexity Across Hybrid IT Models

According to a recent Harvard Business Review study, 63% of organizations are now pursuing a "hybrid IT" approach for their software infrastructure, which combines on-premise technologies with cloud-based IT infrastructure, software, and services.[1] The shift is easily understood in terms of competitive advantage; hybrid models offer greater agility, scalability, speed of deployment, and more. But along with those benefits come significant complexity and operational challenges, too.

Computing in multiple environments means having less control than in the traditional data center. More layers of IT infrastructure means more integration with in-house applications, more data to manage, decreased visibility, and more surface area for attack. To top it off, ensuring service and application visibility and remaining compliant with various standards and regulatory requirements are all more difficult when managing IT resources across multiple environments.

All that ups the ante for CIOs who must maintain service availability while keeping pace with constantly evolving business requirements. They need new tools that can help run processes, comply with regulations, monitor behaviors, maintain visibility, enhance security, and manage costs. Fortunately, help is on the way.

Automation and Orchestration

We expect 2019 will be a big year for robotic process automation (RPA) – a technology that partially or fully automates manual, rule-based, and repetitive tasks like data entry or standard transactions.

The widespread adoption of hybrid IT has set the stage for RPA to go mainstream; however, these platforms are extremely attractive in any environment. Among their many selling points: automated process cycles don't require specialized programming skills to set up; they are much faster than doing things manually; and, the digital workforce of bots perform tasks consistently, 24x7, with high efficiency and near-zero error rate.

Better still, RPA helps lower operating costs. By some estimates, RPA offers 25 to 40% cost savings compared to 5-10% for traditional outsourcing of manual tasks.[2]

In 2018, two start-ups in the RPA space – UiPath and Automation Anywhere – each raised $250M to refine and grow their offerings. That level of commitment reveals expectations for high returns.

Benefits of Robotic Process Automation

- **Simplicity**
  No programming skill needed to configure a bot
- **Productivity**
  Automated process cycles are faster than manual methods
- **Reliability**
  Bots work 24/7/365
- **Consistency**
  Tasks are performed the same way every time
- **Compliance**
  Regulatory rules followed precisely with an audit trail history
- **Non-Invasive**
  No disruption to underlying legacy systems

Identity and Access Management

The decentralized nature of hybrid IT raises the bar on the need to identify people and behaviors. Now, more than ever, CIOs need the ability to validate user identities – both human and machine. They need a scalable technique for confirming that user behaviors are authorized and legitimate. They need a reliable method of monitoring for unusual activity that could be malicious. And they need an effective means of taking defensive measures when suspicious behavior is detected.

For these reasons, we anticipate increased focus on identity and access management as a way to enhance security and control the flow of data. Platform approaches that can manage identity dynamically will be highly sought after, because no single security solution monitors all applications in real time in hybrid IT environments.

Network and Application Monitoring and Visibility

In this hybrid IT world, having full visibility – from the network, infrastructure and application layers – becomes increasingly complex and difficult to maintain. And this issue is magnified by the use of micro-services and containers for critical business applications.

Application users (whether they be customers, employees, vendors, etc.) are focused solely on application availability and user-experience, irrespective of underlying service delivery infrastructure and location. For IT teams, service issues need to be triaged in as little time as possible, regardless of whether they are network, infrastructure, or application related. This means organizations must have the capability to monitor mission-critical business applications at all times, no matter where those apps reside.

Vendors who enable full visibility to all layers of the application topology – from network, infrastructure and application code-level, as well as end-user experience – are set to gain share as hybrid IT proliferates.

Hybrid IT is fast becoming the new normal for enterprise computing. In theory, it offers the best of both worlds – legacy systems plus new cloud-based capabilities. As a result, it is probable that most enterprises will use a hybrid model for the foreseeable future.

Given the overall addressable market and dollars associated with this trend, vendors are lining up to fill in the missing puzzle pieces required to ensure that enterprises can provide their IT solutions through any delivery model. The result will be significant new capital being deployed in these areas as well as significant strategic activity during 2019, and beyond.

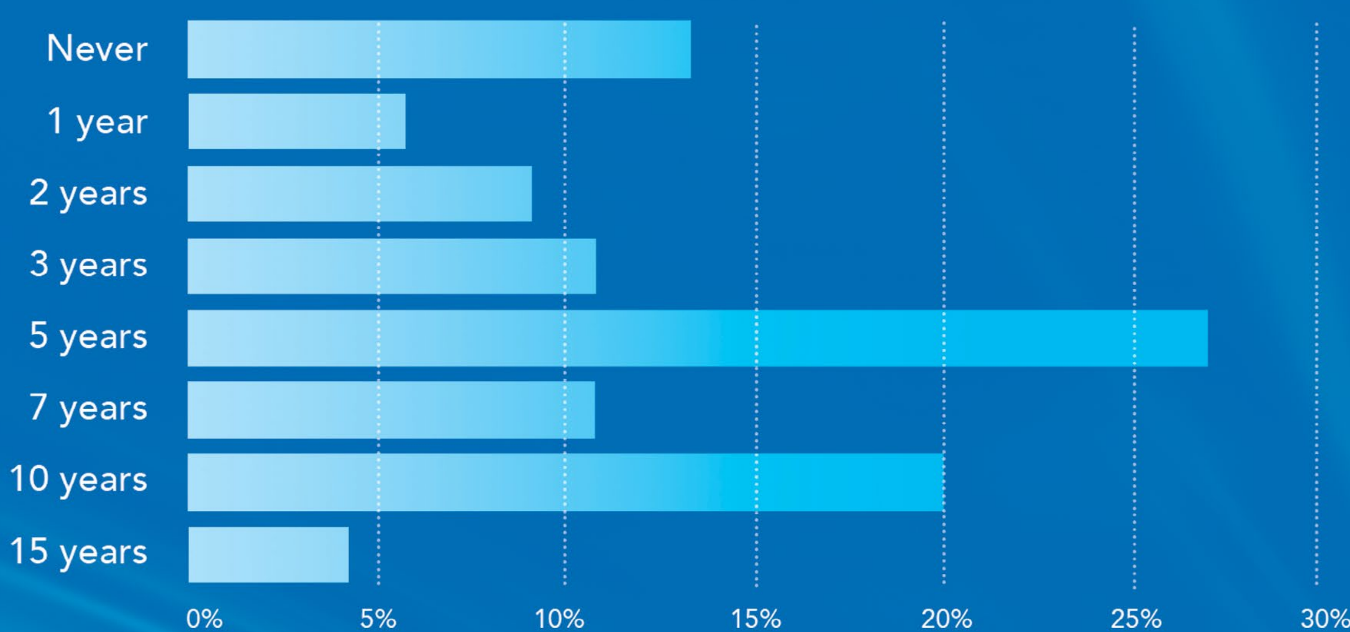
Source:
(1) Harvard Business Review: "Hybrid IT Takes Center Stage" – 06.16
(2) Appian: "What is Robotic Process Automation (RPA) and Why Should I Care?" – 09.07.17

Hybrid IT Adoption

Hybrid IT is fast becoming the new normal for enterprise computing. It combines legacy systems and new cloud-based capabilities. But computing in multiple environments creates many operational challenges. Work load migration between on-premise and the cloud will be based on constantly evolving business requirements.

LogicMonitor – Cloud Vision 2020: The Future of the Cloud
A Survey of Industry Influencers

"How long do you think it will be before more than 95 percent of all workloads run in the cloud (public, private and hybrid)?"



Ted Smith
Co-Founder, President and Head of Software

40x

By 2020 the digital universe is anticipated to grow 40x larger

Enterprise Data: Volume, Velocity and Value

The ongoing growth in enterprise data remains nothing short of mind-boggling: 90% of the world's data was generated in just the last two years. The current rate of new data creation stands at 2.5 Exabytes (2.5 x 10^{18} bytes) per *day*, and this pace is accelerating.[1] As the number of connected devices explodes, the size of the digital universe will grow exponentially with each new device adding to overall data growth.

For more than a decade, businesses have been trying to capture the value of this avalanche of data, although, for the most part, they have just scratched the surface. But that's changing fast. With the ever-expanding flow of data and data sources, new platforms are being deployed to rapidly harness, organize, combine, synthesize and analyze this information – powerful tools for real business users, not just data scientists, leading to even greater operational insights and leverage.

New software also is leveraging the power of data more broadly in the enterprise via next-generation human+machine interfaces. For example, the marriage of natural language generation (NLG) with analytics enables the automatic, AI-driven creation of easy-to-read narratives. These narratives allow a wide range of users to gain real insights into their organizations far more easily than by using raw numbers or charts and graphs alone. Despite being less than 5% penetrated today, Gartner predicts that NLG will be a standard feature in 90% of modern analytics platforms by 2020.

Performance Enhancement

In addition to the data analysis tools available in traditional BI and analytics solutions, a broad range of enterprise software vendors are now building and embedding analytics capabilities directly into their offerings – and often the depth and quality of these analytics is a key product differentiator and a hallmark of market leadership.

One example of this is in DevOps, the merging of software development and IT operations to deliver an improved developer experience and, ultimately, superior software output. As developers increasingly shift their focus to new tools and methodologies for creating cloud-native software, the analytics found in DevOps platforms can help them monitor and dramatically improve team collaboration, product quality and speed to market, all while significantly reducing costs. Microsoft's recent $7.5B acquisition of GitHub underscores the value of these DevOps platforms and their ability to deliver increased user efficiency and innovation. We look for continued strategic activity in this space going forward.

Customer Experience (CX) management platforms are another example of analytics-driven software taking center stage in the current environment. In 2018, the IPO of SurveyMonkey, the acquisition of Mattersight by NICE Systems, and the acquisition of Qualtrics by SAP were just the tip of the proverbial iceberg in this space.

Consumers interact with brands across a wide range of verticals using numerous channels (voice, website, email, online chat, mobile app, surveys, etc.), leaving behind a rich but often disjointed data footprint. CX platforms provide a powerful solution for capturing all this feedback in a central repository, from which deep analytics can be run to "close the loop" and provide tremendous insights into consumer behavior. With this knowledge, enterprises can track the entire customer journey to resolve issues, improve service, reduce churn, identify new sales opportunities, and enhance their brands.

Talent and workforce management software is yet another arena in which analytics play a significant role, and where we expect ongoing strategic activity. For example, companies that increasingly rely on remote and contract employees need solutions to help them select, deploy and evaluate team members. Applied analytics can help them create an agile workforce made up of small, cross-functional teams with skills and experiences perfectly tailored to specific assignments. The analytics can also help optimize go-to-market execution, assess performance, and manage compensation programs.

Trustworthy Experiences

Growing data volumes also mean increased requirements for data security. An important emerging category of enterprise digital security involves safeguarding brand image and corporate reputation on social media and other external environments. The massive reach and openness of these online platforms make them attractive and susceptible to bad actors seeking to influence public opinion or disrupt legitimate conversations. By using automated bot technology, the bad guys can launch attacks

Data Enabled Solutions

- **DevOps**
- **SecOps**
- **Digital Transformation Solutions**
- **Customer Engagement Management**
- **Talent & Workforce Management**
- **Workforce Planning & Analytics**
- **Employee Engagement**

at unprecedented speed and scale, quickly whipping fake news or minor mishaps into full-blown crises.

The need for security in the social sphere is a new challenge that software companies offering digital intelligence solutions are just beginning to tackle. This is the natural evolution of solutions initially used to protect data within the enterprise from theft or inappropriate use.

Meanwhile, the weaponization of social and political issues continues to accelerate – one only need to look at recent U.S. election dynamics to see this phenomenon at work. If left unchecked, such attacks could have a highly detrimental effect on corporate brands and institutional integrity, calling into question the credibility, and ultimately the perceived value, of social media platforms themselves.

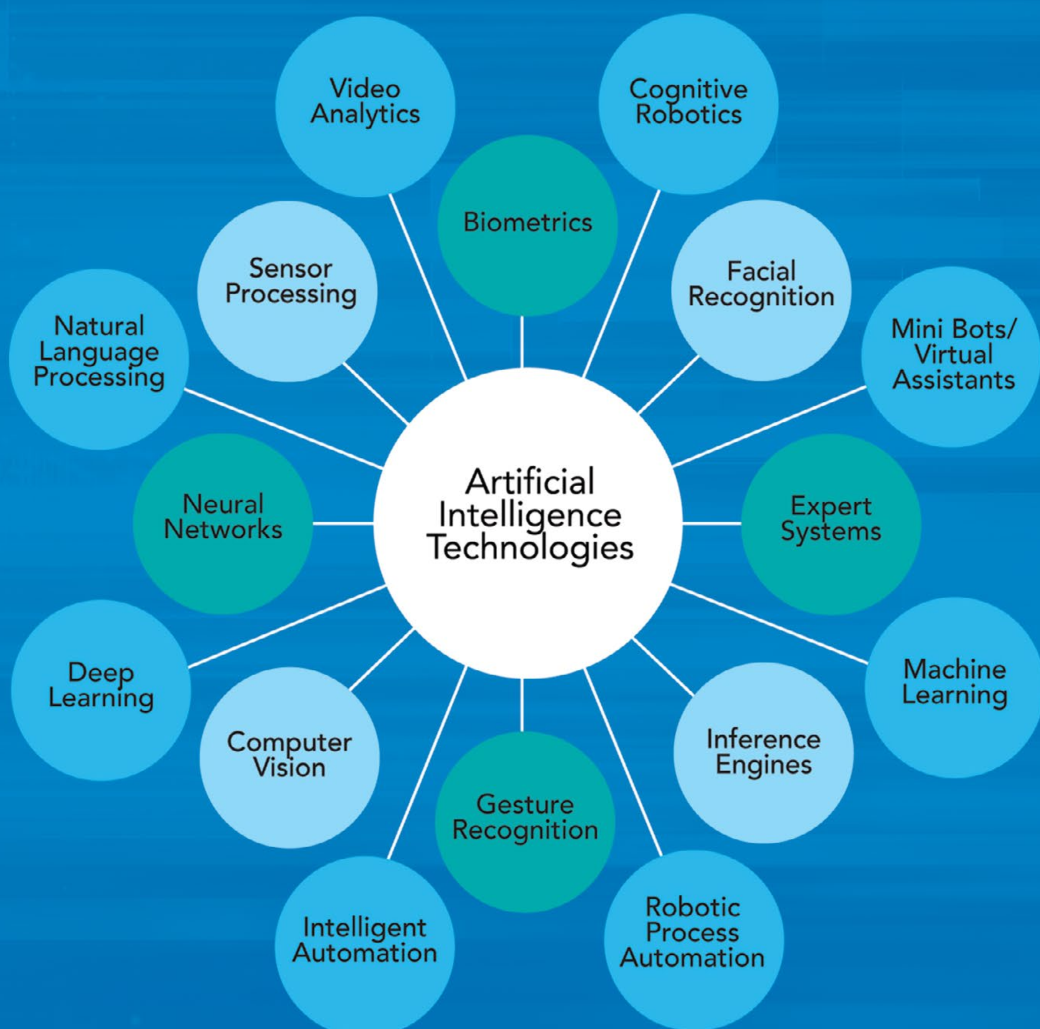
Closely related to the necessity of securing the social landscape is the need to uniquely determine and protect machine identities within and across organizations. Solutions that verify human identities (e.g., passwords, fingerprint readers), control access to resources, and enable privileges within a given system, have been around for decades. However, there are far more connected devices than people today and the solutions for managing machine identities are much more rudimentary than those for managing human identities. In an IoT-driven world of 100+ billion connected devices, where poorly protected machines represent a much graver security threat than that of their human counterparts, software that effectively protects and manages machine identities at scale is a fundamental requirement.

The common denominator among all these solutions is their ability to capture large amounts of data from a wide range of sources, analyze this information in depth, and ultimately harness it to drive significant performance and/or security improvements. Next-generation data/analytics-driven solutions are at the leading edge of software innovation and investment, and where we expect continued meaningful transaction (both M&A and financing) activity for the coming year.

Source:
(1) Forbes: "How Much Data Do We Create Every Day?" – 05.21.18

Artificial Intelligence Technologies

Next-generation data/analytics-driven solutions are at the leading edge of software innovation and investment. New solutions that derive value from data with artificial intelligence and machine learning technologies will separate themselves from the pack.



Source: Accenture: Applications of Artificial Intelligence – 2018

Dean Riskas
Partner and Head of
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Refining term sheets can satisfy short-term needs and strengthen long-term relationships

Structural Solutions to Investing in Volatile Markets

It is a peculiar time in the capital markets. A persistent tsunami of "use it or lose it" deployable capital has so heavily flooded VC and PE firms in 2018 that investments, while made in fewer companies, are continuing to grow in size in order to accommodate high valuation expectations and capital needs of deserving companies (and some that may not be so deserving...).

Of course, as valuation expectations increase, investors are required to raise additional capital to remain competitive in their chosen markets. And so goes the merry-go-round: raise more money to be able to spend more money, which then requires the need to raise more money while the music keeps playing. But what happens when the music stops? Will geopolitical "black swans" (e.g., tariffs, interest rates, trade wars, and political unrest) continue to rattle the already volatile equity markets? And will that market support IPOs? If so, turn up the music again; if not, then what? How do investors maximize the probability of getting a return of capital and on capital?

This is the question that makes the current capital market so unpredictable for investors. It clouds the decision whether to deploy more or less capital in 2019. To commit more exacerbates concern about the expected return on investment. To spend less invites fear of missing out.

For VC, PE and Growth investors, the middle ground may be offering structured financing in the form of Equity *and* Debt that can still be favorably priced, but may also include protective covenants and provisions, and/or economic enhancements for investors such as higher preference stacks, warrants requiring board seats, liens against IP, etc.

Liquidity and Valuation

As long as there is readily availability liquidity and aggressive investors who fear missing opportunities, it's going to be a seller's market. More likely, equilibrium will work its magic with some investors being aggressive, and others more conservative – with wins and losses being what they will be for each category of investors.

If valuation multiples decline and market volatility continues, the IPO outlook will become choppier, and even more companies may opt to sell. Likewise, VC, PE firms, and growth investors will continue to focus on monetizing certain parts of their portfolios. Lower valuations may also force boards of venture-backed companies to decide whether to raise capital or sell outright sooner than anticipated. If so, that will create another set of challenges for companies with complex capital structures and investors with different shareholder bases and biases.

In times like these, it behooves buyers and sellers alike to take stock of their strategies and take the pulse of their partners

Strategics will likely be more selective too, biding their time on potentially synergistic acquisition opportunities until they feel they can negotiate a lower purchase price. Should valuations decline in 2019, it is likely that strategics will become more active, adding revenue and profit synergies from complementary technologies and products.

Clearly, 2019 will be an interesting time for game theorists. Market conditions will behoove buyers and sellers alike to take stock of their strategies and take the pulse of their partners. Everyone will want to protect their interests, likely in the form of more rigorously crafted term sheets.

Defining Outcomes

Looking ahead, we expect there will be ample liquidity in 2019 to sustain a steady flow of deals. In general, prices should remain high enough to encourage sellers, yet still low enough to promise a reasonable return.

At the same time, however, there is a more cautious attitude brewing among investors. For them, we strongly suggest exploring a range of transaction scenarios. For example, if the current bull market slows, and valuations fall under scrutiny, then buy-sell agreements may require additional protections.

We expect to see term sheets that are marginally more favorable to investors than their targets (for now), with provisions that include protective covenants, preferences, and other nuances. There are many ways to structure term sheets that improve the likelihood of realizing an acceptable return in a volatile market. The main point is that it's wise to tailor financial agreements to suit the times. And in times like these, it is important to define satisfactory alternate endings.

Teaming with an expert corporate finance advisor, a firm with long experience in guiding clients through numerous technology cycles (yes, like Union Square Advisors), will prove very helpful to buyers and sellers in these volatile market conditions.

RPA and AI: Different Approaches to Problem Solving

Robotic Process Automation (RPA) and Artificial Intelligence (AI) are often grouped together, but they involve different approaches to solving business problems. What makes them different?

RPA helps overcome existing systems' limitations	AI works with those limitations to convert them into relevant output
Non-invasively mimics users' activities	Mimics human thought processes through vision, language, and pattern detection
Can process structured and some semi-structured data	Can process structured, semi-structured, and unstructured data
Automation is rules-based	Can learn or change its behavior over time without being explicitly programmed, based on data collected
Highly deterministic	Probabilistic but can have safeguards to make it deterministic
Agent-assist or digital labor models	Point solutions - not broad-based capability (narrow AI)

Source: Everest Group: Market Insights – 01.29.18

Our senior bankers have a collective 200+ years of experience. Our partners and managing directors are intimately involved in every transaction.

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