UNION SQUARE ADVISORS

OUTLOOK 2022

The Power of Resilience:
Technology is Well Positioned for 2022

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Overview

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

Our team includes former heads of the world's largest technology investment banking practices, plus senior professionals with deep experience providing superior advice to boards of directors and management teams in multiple arenas. We specialize in board advisory and special committee assignments, mergers & acquisitions, buyouts, restructurings, special situations, public and private capital raises, capital structure optimization, liability management and other capital markets transactions. With extremely deep sector knowledge and strong relationships throughout the tech ecosystem, our business centers on advising the leading companies and pools of capital across the technology universe. Since its founding in 2007, Union Square Advisors has completed more than 150 transactions, with total transaction value in excess of $115 billion.

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Technology Coverage

Our expertise spans many aspects of the technology landscape, including Enterprise Software and Infrastructure, FinTech, Healthcare IT, Internet+Digital Media, eCommerce, Consumer Software, AIoT & Industrial Technology and other key segments and trends including:

- Enterprise Digital Transformation
- Big Data and Advanced Analytics, powered by AI/ML
- The Morphing Security and Identity Landscape
- Next-Generation FinTech, Payments, Procurement and Risk Management
- NPM/APM, Infrastructure Visibility and ITOA
- IT-as-a-Service Across Layers 4 – 7
- Converged and Edge-Based Solutions for Faster and More Secure Computing
- AdTech Meets MarTech
- Evolving Consumer Needs and Customer Experience Management Responses
- Changing Human Capital Management Requirements
- Mobile-First Applications
- Vertical Marketplace Models

Resilience Positions Technology Well for 2022

As the pandemic grinds through a second year, we thought it apt to reflect first on the concept of resilience.

Unfortunately, COVID-19 proved to be more resilient than we initially expected thanks to additional variants, structural challenges and human foibles, even as science provided more understanding of the virus and effective vaccines reached many around the globe. At the same time, people and communities demonstrated incredible resilience as well, despite having to struggle through the ongoing aftershocks of the pandemic and U.S. political upheaval. Perhaps most surprisingly given all the ongoing uncertainty, financial markets also showed their resilience — many sectors absorbed coronavirus-induced fear, rising inflation and regulatory ambiguity to emerge flush with cash and with indices near record highs.

Within our sphere, the technology sector itself exhibited impressive resilience, underscoring its unique and indispensable ability to bolster companies with innovation — while delivering stellar returns for investors in the process. What's more, we firmly believe the technology market's performance throughout the pandemic positions the sector for yet more growth in the coming year and beyond – despite a bit of a rocky start to the beginning of 2022.

We believe this even though 2021 did not progress as encouragingly as we originally anticipated. The rollout of vaccines failed to remove the COVID-19 threat; uneven vaccination numbers and the emergence of COVID variants sustained the pandemic and its attendant uncertainties, hindering a more complete economic recovery. Making matters worse, burgeoning consumer demand, snarled supply chains, rising rents and energy price increases have accelerated inflation at the fastest pace in over three decades.

Offsetting these challenges, many governments showcased the valuable lessons learned during the 2008 global financial crisis — they supplied the liquidity necessary to buoy markets, businesses and consumers severely affected by the pandemic. More broadly, we also saw encouraging signs of a greater alignment of thinking and a more active and responsive central government addressing the economy's pain points.

This liquidity helps ensure that markets won't freeze up, consumers will keep spending and many businesses will pull through. Additionally, the abundance of available capital has given VC and PE firms the resources necessary to continue funding great teams and great ideas in technology, while creating even more opportunities to develop and grow market-defining companies. The sheer volume of available capital and the ability to finance technical innovation through a wide range of public and private vehicles — including SPACs, another liquidity alternative available to later-stage private companies — give the technology sector incredible momentum.

Throughout 2021, many market participants witnessed the critical role technology played in helping a broad range of enterprises weather the pandemic; COVID-19's economic impact would have been far more damaging without the technology that emerged over the last decade. Meanwhile, large enterprises that power key non-technology elements of the economy

Carter McClelland, Co-Founder and Chairman *(left)*
Ted Smith, Co-Founder and President *(center)*

continued to lean heavily on their technology investments to survive as COVID-19 variants emerged and supply chain issues worsened.

Software and cloud-based services, comprising ones and zeros that can be delivered virtually anywhere, weren't affected by travel restrictions, physical distancing requirements or supply chain slowdowns. Technology made it possible for financial services and many other critical industries to remain productive, and in some cases these solutions even enhanced productivity by allowing companies to pivot away from in-person meetings and time-consuming travel requirements.

We remain optimistic about the prospects for economic stability and strength in the technology sector going forward. Crucial to this outlook, we see technology continuing to evolve in its unique and unmatched role as an indispensable component of all commercial, consumer and government activity. We also see as critical the combination of abundant capital, demand for innovation and the unmatched human creative spirit, essential fuel that we don't expect will run dry anytime soon.

Now some may argue that current Department of Justice and Federal Trade Commission approaches to large-scale mergers potentially represent comparable roadblocks to the ambitions of leading U.S.-based technology companies, but we feel that this is largely a red herring — M&A and capital-raising transactions in the space will continue unabated in 2022, and beyond. While it's important that the U.S. maintain a commercial environment that resists anti-competitive behaviors, especially from its largest market participants, it's equally important that the scope and pace of technical innovation not be artificially constrained. Technology remains one of the incredible bright spots in the U.S. economy, and we believe our government officials ultimately understand the importance of maintaining and enhancing the competitive advantages it provides us.

Within this complex, global and often conflicting environment, technology companies and investors still require sound advice and guidance to navigate successfully. As we conclude our strongest year on record and look forward to an even more successful 15th year for Union Square Advisors in 2022, we continue to perform the very gratifying work that enables us to deliver superior counsel to these companies and investors. As ever, our deep domain knowledge and extensive transaction experience allow us to add value across the technology ecosystem on all types of strategic and financing transactions. We are excited to continue guiding our clients across the complicated technology landscape and position them to achieve their goals. Let us help you do the same.

Carter McClelland
Co-Founder and Chairman

Ted Smith
Co-Founder and President



Wayne Kawarabayashi | Partner, COO and Head of M&A *(left)*
Devon Ritch | Partner, M&A *(center)*
Phillip Kim | Managing Director, M&A *(right)*

Record 2021 Year All Around

We lived through unprecedented times in 2020, faced with a global pandemic and all its attendant challenges. However, we also saw record or near-record activity levels across M&A, private financings and IPOs in the technology space. While we foresaw an even better 2021, we did not anticipate the activity levels would exceed 2020 by such a large margin.

It continues to be the case that technology is both resilient and pervasive. Literally every industry that already had been embracing technology-based operations and solutions continued its acceleration of digital transformation during this prolonged pandemic. That pervasiveness translated into a frenzy of acquisitions and capital raising, particularly in technology. TMT M&A volume for 2021 exceeded $1 trillion. The M&A volume was $1,037.8B. This represented a 70% increase over 2020's volume of $611.9B. We saw activity in cloud technology, semiconductors, cybersecurity, telecommunications, mobile, collaboration/communications, IT services, remote working, digital transformation, AI/ML and data analytics, customer engagement, martech/adtech, e-commerce, gaming, healthcare IT, financial technology, cryptocurrencies/blockchain, robotic process automation, electric and autonomous vehicles, and IoT. There were a lot more deals over $5B in 2021 vs. 2020 (55 vs. 29). The largest TMT deals included: Square/Afterpay ($29.0B), Oracle/Cerner ($29.7B), Rogers Communications/Shaw Communications ($25.6B), Microsoft/Nuance ($19.9B), Advent/McAfee ($14.1B), OptumHealth/Change Healthcare ($12.7B), Baxter/Hill-Rom ($12.4B), Intuit/The Rocket Science Group ($12.0B), Emerson Electric/Aspen Technology ($10.9B), American Tower/CoreSite Realty ($10.1B), Hitachi/GlobalLogic ($9.6B), American Tower/Telxius ($9.4B), NortonLifeLock/Avast Software ($8.6B), and Panasonic/Blue Yonder ($8.5B).

Private equity continued to show extremely strong activity as well. Activity was fueled by recent fund raises and continued low interest rates plus a desire by targets to monetize in an attractive valuation environment. The largest private equity TMT deals included: Hellman & Friedman and Bain Capital/athenahealth ($17.0B), KKR and GIP/CyrusOne ($15.0B), Advent/McAfee ($14.1B), Thoma Bravo/Proofpoint ($12.3B), Blackstone/QTS Realty Trust ($11.3B), Apollo/Lumen LEC operations ($7.5B), Nordic Capital & Insight Partners/Inovalon ($7.3B), Thoma Bravo/Stamps.com ($6.6B), and Thoma Bravo/Medallia ($6.4B).

With all the SPACs that went public since 2020, IPO and deSPAC activity remained strong despite taking a bit of a breather in Q2 of this year. SPAC IPO volumes in 2021 were $136.6B, a 59% increase over 2020's $86.0B volume. TMT SPAC IPO volumes in 2021 were $47.1B vs $43.5B in 2020, a 8% increase year over year. SPAC companies inked some of the largest TMT deals last year: Churchill Capital IV/Lucid ($62.3B), Altimeter Growth Corp/Grab ($39.6B), The Gores Guggenheim Inc./Polestar ($21.3B), Reinvent Technology Partners/Aurora Innovation ($13.0B), Thoma Bravo Advantage/ironSource ($11.1B), EJF Acquisition Corp/Pagaya ($9.1B), Far Peak Acquisition Corporation/Bullish ($9.0B), and Social Capital Hedosophia/SoFi ($8.7B).

Similarly, IPOs remained active, with 107 tech IPOs totaling $73.4B in 2021, compared to 71 tech IPOs over the same period in 2020 with volume of $45.6B. The most notable TMT IPOs included: Roblox (raised $9.0B, 1-day performance of +54%), Coupang ($4.6B, +41%), Didi Global ($4.4B, +41%), GlobalFoundries ($2.6B, +3.7%), Bumble ($2.2B, +76%), AppLoving ($2.0B, -24%), and Squarespace ($2.0B, 0%).

Lastly, private placements had a very strong year as well totaling $145.8.B growing 31% over 2020's volume of $111.1.B. The largest TMT deals included: Flipkart ($3.6B), Yanolja ($1.7B), Databricks ($1.6B), Trendyol ($1.5B), Swiggy ($1.3B), Lacework ($1.3B), Sitecore ($1.2B), Gopuff ($1.2B), EpicGames ($1.0B), Databricks ($1.0B), and Gorillas ($1.0B).

Union Square Advisors also had an active year advising on transactions across the tech spectrum including the following selected transactions: InterPrivate III Financial Partners/Aspiration Financial ($2.3B, pending), Osprey Technology Acquisition Corp./BlackSky ($1.1B), Embracer/Gearbox (up to $1.3B), ITHAX Acquisition Corp/Mondee ($1B), Lumentum/NeoPhotonics ($918M, pending), Permira/Motus, Altus Group/Reonomy ($202M), Oaktree Capital Management investment and other investors in Aspiration Partners ($315M), Great Hill Partners investment in Totango ($100M), Long Ridge Equity Partners investment in AuthenticID ($100M), and Farallon Capital Management and Soleus Capital investment in Genapsys ($70M).

2022 Forecast: Tech Remains Strong

As we enter 2022, we anticipate another positive year for technology, notwithstanding the market sell-off in technology to start January. We believe there will continue to be significant M&A and financings activities for tech companies as their customers scale to be more competitive, adopt the latest technologies, pursue strategies to strengthen their supply chain relationships, and address any prolonged impacts of the pandemic. We believe areas of investment and acquisitions for 2022 will focus on digital transformation, cloud-based solutions, 5G-enabling technologies, workforce management, business intelligence and data analytics, customer experience management, ecommerce and digital payments, cyrptocurrencies/blockchain, healthcare IT, gaming, IoT, and ESG technologies (to name a few). However, we also will be watching the market closely as we face more headwinds with COVID's Omicron and other potential variants, recent tech sell-off in the markets, upcoming 2022 U.S. mid-term elections, geopolitical tensions, the potential for a U.S. tax hike, inflation risk, labor shortages, global supply chain issues, and the uncertainties related to China's real estate market. Supply chain issues caused by the pandemic are driving prices higher and, coupled with increased overall inflation, could drive interest rates higher. Any or all these issues could have a dampening effect on the equity markets and also make borrowing more expensive for buyers looking to fund M&A transactions, all of which in turn could create an increased divergence between buyer and seller expectations for value.

Technology companies continue to see strong valuations, despite early January selloffs, and, as long as market multiples remain elevated, they will continue to regard this as a very attractive time to sell or raise capital. Competition is robust and therefore buyers and investors attempt to preempt auction processes by stretching on deal terms, finishing diligence early, putting forth target-friendly markups of definitive agreements, offering to buy representations and warranties insurance, and providing committed financing or no financing contingencies. At the same time, considering the pandemic, buyers and investors are doing extensive due diligence (which now include ESG compliance, data privacy and cybersecurity resilience), wanting to meet management in person at least once, beefing up representations and warranties and indemnification provisions, and offering earn-outs and/or asking for seller financing to bridge value gaps.

SPACs and traditional IPOs continue to offer multiple paths to a public market exit for private companies while the continued sizeable investments by cross-over institutional funds will encourage some private companies to remain private even longer. 2021 saw an initial period of frenzied SPAC activity, followed by a near-freezing of the SPAC market; as we move forward, more reputable sponsors and higher-quality technology companies may have greater success in completing transactions at attractive levels and securing PIPE financings to support their deals. Despite market volatility in early 2022, as equity markets stabilize we likely will see continued activity for SPACs and IPOs in consumer and internet technologies, B2B software, automation technologies, electric and autonomous vehicle technologies, industrial IOT healthcare IT, and financial technology. We have seen and will continue to see the unlocking of value through spin-offs (e.g., Dell's spin-off of VMware and IBM's spin-off of Kyndryl), carve-outs and divestitures, as companies try to focus on their core businesses while creating additional shareholder value through these measures.

Regulatory scrutiny of transactions is on the rise, particularly under this administration, for large tech deals (vertical and horizontal mergers) and cross border transactions, especially where Big Tech companies, data privacy and national security are concerned. Even SPACs are also under the microscope from the SEC and Congress.

Omicron and Delta COVID infection surges, supply chain constraints, inflation and the January tech sell-off are top of mind with investors and companies as we move into 2022. Assuming these or other significant geopolitical, macroeconomic and capital market shocks aren't materially disruptive to the economy and markets, tech M&A and financing activity should remain robust in 2022.

*Data sources for volume for M&A, private placements, IPO, and SPAC activities: 451 Research, FactSet, Pitchbook, Renaissance Capital and Mergermarket.

Andrew Atherton
Managing Director, Software

Risk management in the post-COVID Era

The digital transformation wave that revolutionized key segments of the enterprise landscape, including customer relationship management (CRM) and human capital management (HCM), has now spread to governance, risk management and compliance (GRC). The COVID-19 pandemic has underscored and accelerated the need for companies to automate GRC functions, as many struggled to maintain smooth operations and keep pace with a fast-changing regulatory landscape over the last two years. Enterprise software companies have introduced numerous solutions to help automate everything from risk and supply chain management to assessing third-party vendor relationships.

Risk management – a massive and growing market

The pandemic threw a curveball to risk managers who have been challenged by many issues that few likely ever considered. Given the movement to digital, risks also grew – including cybersecurity and operational risks. As a result of COVID-19 and a growing need to improve risk management, the global industry is expected to grow significantly over several years. The global risk management industry, which totaled $7.4 billion in 2019, is forecast to grow to $29 billion by 2027.[1] Post-COVID, many industries are turning to software solutions to ramp up their GRC capabilities.

COVID-19 exploits supply chain risks

One of the biggest challenges during the pandemic has been the stunting of the global supply chain. As shutdowns snarled supply chains, companies were forced to source goods and services from alternative suppliers to keep pace with consumer demand. External pressures from government policy, regulations and trade wars also have created headaches for supply chain risk managers. Since these issues are complex and likely won't be solved in the near-term, supply chain risk management solutions will be in demand for the next several years as companies seek to keep the lines open during any future disruption.

ESG forcing companies to adopt new governance models

Environmental, social and governance (ESG) issues were on the corporate radar long before the pandemic; ESG issues, however, have been magnified over the last 18+ months. Increased scrutiny from investors, corporate boards and regulators has forced companies to adopt transparent ESG policies that show their approach to social and environmental concerns such as diversity and climate change. While companies are being held to higher ethical standards, internal risk managers also are now accountable for the actions of their companies as well as those of third-party vendors.

The global risk management industry, which totaled $7.4 billion in 2019, is forecast to grow to $29 billion by 2027.[1]

A fast-evolving global regulatory environment

New regulations are adding further challenges for business compliance and operations. For example, Germany's Supply Chain Due Diligence Act aspires to hold companies responsible for the ethical and environmental actions of their suppliers. ESG ratings are generally applied at the corporate level. This act, however, assesses ESG performance based on the company and its suppliers, creating high costs for companies charged with monitoring and reporting the activities of its vendors.

Other new regulations focus on data privacy, such as the General Data Protection Regulation in the European Union and the California Consumer Privacy Act, which seek to ensure that companies adequately protect consumer data. These new regulations are significant and likely only the beginning of global data management and protection policies. GRC professionals should expect more GDPR-like rules in the future as governments seek to extend existing consumer privacy laws. They also should expect continued scrutiny from values-minded consumers and employees, and greater potential impact on their companies' brands.

Data integrity and regulatory compliance is crucial to organizational success in any field, which is why we see growth opportunities for software companies focused on delivering GRC solutions. Several companies have launched cloud-based tools that can automate enterprise risk and compliance management programs across multiple verticals. Digital innovation powered by artificial intelligence and machine learning will be crucial to discovering and preventing events for GRC teams going forward, as the risk landscape promises to increase even further in complexity over time.

Demand drivers for risk tools will continue to grow

Given the uncertainty of current conditions, we've seen rising demand for risk management software solutions. While the world continues to evolve and move into a

"new normal" post-COVID, corporate risk managers will continue to face numerous challenges; many functions remain dependent on people, including supply chain management. At the same time, supply chains will continue to be constrained for the time being, and the herculean task of automating them front-to-back on a global basis remains. The enterprise B2B software space will continue to generate intense demand as these challenges grow, and as companies seek more ways to automate GRC activities and improve their risk management capabilities.

[1] Allied Market Research data and forecast
https://www.prnewswire.com/news-releases/risk-management-market-to-garner-28-87-bn-globally-by-2027-at-18-7-cagr-allied-market-research-301282858.html

Will Andereck
Managing Director, Software

Enterprise Software Growth Continues to Accelerate

The COVID-19 pandemic accelerated a digital wave already underway in most verticals and business user groups, driving change in everything from virtual work to identifying and engaging with potential new customers. While the world slowly returns to in-person experiences, the digital transformation that has permeated nearly every aspect of our lives over the last two years will continue to grow.

Companies began to lay the foundation for digitalizing everything through significant technology investments made before March 2020. The pandemic, however, forced most industries to accelerate these activities while learning and adapting in real-time how to meet changing markets and consumer preferences with a “digital-first” orientation. We have seen entire industries pivot to new hybrid business and employment models through completely digitized sales and marketing lead generation, not to mention customer service interaction, and business communications.

Companies will spend an estimated $4 trillion on information technology-related services and solutions in 2021, an 8.4% growth over last year.

Many companies met these incredible challenges and thrived in this new environment. Because of the seamless adoption of technology and transition to a digital-first world – and because people’s expectations have changed, we do not envision a return to a pre-pandemic approach. Whether you are focused on employees, customers, or vendors, an enterprise software solution seeks to make that experience easier and more seamless for everyone. We expect enterprise software companies to continue to innovate and thrive in this rapidly changing environment.

Continued growth pushed by digitalization

We’re experiencing an accelerating software boom that will continue reshaping the landscape over the next several years. Business activity tied to software increased dramatically in 2021, a trend we expect to continue in 2022 and beyond. Companies spent an estimated $4 trillion on all information technology-related services and solutions in 2021, of which more than $500B was spent on enterprise software. This spending is expected to increase across all IT categories again in 2022, with overall IT spending growth of 5.5%; enterprise software is the segment anticipated to grow the fastest, at 10.6%, for a total 2022 spend of $571B. [1]

We see an increasing need for intelligent software that helps businesses make the digital leap to engage and connect people in the same easy, instant and intuitive way as the consumer apps they all use. From workflow solutions that enable call centers to run virtually to marketing and sales tech that tracks a customer across their entire journey, software is fast becoming a “front office” function. Employee and customer experiences are increasingly evaluated on the digital front.

Software companies continue to innovate in this arena, buoyed by the evolution of artificial intelligence, big data and machine learning. As AI becomes less expensive and more prevalent, new solutions are coming to market with even greater levels of automation. Increasingly, AI and machine learning are being used to write and upgrade the code itself, making it easier for non-IT business units to customize their own applications, whether in HR, finance, marketing or other operational areas.

No-Code/Low Code Makes Everyone a programmer

Very large data sets, such as customer data and employee data, are being used to train AI systems and make new workflow solutions "intelligent." The optimal use of these data sets allows businesses to engage their customers or employees at the right time, at the right place, in the right way, using the right content. It also enables the movement towards mass personalization, a way for businesses to customize virtually anything – at scale.

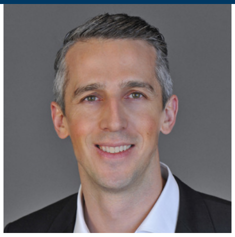
The rise of no-code/low-code (LC/NC) solutions has grown in recent years as companies seek to strike the right balance between cost and functionality. Building customized applications in-house has always presented cost challenges, while buying "off-the-rack" solutions from a third-party vendor is often less expensive but not always the right fit. LC/NC empowers an application's end users to customize it in a way that best suits them – and typically, they don't need to have any programming experience. The apps are built from easy-to-use interfaces, such as clicking on a drop-down menu. LC/NC software aims to truly empower business users – across HR, sales, marketing, finance, and other areas – allowing each group to customize a software solution that works best for their team while integrating well with other applications. We see this as the rise of "software made easy," a seamless, intuitive approach that leads to better outcomes at a lower cost.

Continued growth in enterprise software

While the world adapts to the COVID-19 "new normal," the rapid adoption of software solutions that enable people to work and conduct business from anywhere will continue to evolve and grow. The lines between an in-person experience and digital are blurring because

that's the way employees and customers are experiencing their interactions today – and it's increasingly how they want them to continue. These trends will continue in 2022 as companies seek ways to automate and digitize everything to create a seamless, easy experience for their employees, customers and vendors.

[1] Gartner forecast, April 2021, https://www.gartner.com/en/newsroom/press-releases/2021-04-07-gartner-forecasts-worldwide-it-spending-to-reach-4-trillion-in-2021



Todd Holman
Managing Director, Internet & Digital Media

Technology that Drives Transparency, Consolidation and Predictive Analytics Will Transform Real Estate in 2022 and Beyond

New real estate-focused technology platforms are attracting record levels of investment and changing how residential and commercial buyers, sellers, investors and service providers do business. These platforms and capabilities are upending a historically opaque and disjointed industry. As we look ahead to 2022, we see three significant, technology-enabled trends that will continue to transform the industry: unprecedented data transparency, increased consolidation of services, and the rapid rise of predictive analytics.

These and other trends have contributed to what has been a record-breaking year for real estate technology investment, or proptech. Venture capitalists and other investors put $9.5 billion into the sector through mid-November 2021, according to data from CB Insights. That tops the prior record of $9 billion invested in the sector in 2019, and well exceeds the $8.1 billion invested in pandemic-battered 2020.

In one such deal, valued at $201.5 million, Altus Group Limited, which provides software, data solutions and independent advisory services to the global commercial real estate industry, purchased Reonomy, a fast growing, AI-powered data platform for the CRE industry. (Note: Union Square Advisors served as the exclusive financial advisor for Reonomy.) This transaction, with its focus on data and analytics, illustrates the first trend: dramatically increased transparency.

New and evolving real estate technology is addressing what has long been an intractable problem: developing a comprehensive view into property ownership, both for individual properties as well as the assets in any given investor's portfolio. New software platforms that incorporate multiple public and private sources, analytic capabilities, artificial intelligence and machine learning are revealing data and information that historically have been hidden from view. Investors and service providers of all types, including lenders, brokers, maintenance and property-management businesses, now have a level of knowledge that far exceeds anything in the past, allowing them to identify and research opportunities, and negotiate and close transactions. These platforms also are being leveraged for targeted marketing and lead generation. For example, with a more robust picture of a neighborhood, city, state or region, participants can identify where there is concentrated ownership. This would be of particular interest to a company that provides management and maintenance services, or to investors or other buyers looking to make multi-property acquisitions.

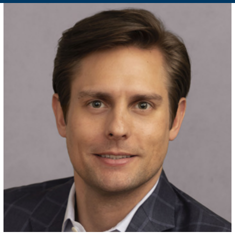
Consolidation, the second trend, is being enabled by the continued digitization and confluence of historical and legacy tools. This allows participants across the process – real estate agents, title companies, mortgage originators, appraisers, property managers and others – to create a unified constellation of services, capturing more clients and fees along the way. While there is still a lot of fragmentation, new business models that leverage these tools will continue to proliferate and create one-stop shops for buyers, sellers and service providers.

The rise of predictive analytics is the third significant trend. This marks an evolution from platforms that collect data, but largely leave decision-making to individuals, to ones that are capable of "seeing ahead" and making recommendations. Drawing on large databases and a deep pool of knowledge about trends and other topics, these platforms are poised to make increasingly refined suggestions about what to buy, when to sell, and which geographic regions hold the most potential, among other predictions.

In one example, predictive analytics might be able to take seemingly disparate information, such as housing stock and valuations, and then couple it with demographic, business and job trends data, in order to pinpoint a need for housing, office or industrial space. While brick-and-mortar retail has been sluggish during the pandemic, online shopping has exploded – significantly intensifying the competition for desirable warehouse sites. This will only become more urgent as the time from purchase to delivery continues to shrink. Many retailers, for example, are looking for warehouse space in urban cores or other densely populated areas to solve the last-mile challenge and also to be able to make deliveries within an hour or less.

While transformative technology may have come a bit later to real estate than it did to other sectors such as retail, it's now rapidly remaking the experience and driving different processes and outcomes in 2022 and beyond. Expect to see more startups and maturing businesses along with an increase in investments across the sector, from cloud-based property management platforms, to technology that accelerates and makes construction more efficient, to new tools for monitoring and improving property sustainability metrics.

As the industry vertical with the largest overall GDP (more than $4 trillion dollars), real estate technology will continue to accelerate. It's likely that in the future, 2021's record investment level of $9.5 billion will seem modest, even miniscule. For now, technology solutions that increase transparency and knowledge, enable consolidation and a more frictionless experience, and provide a competitive advantage with predictive analytics, will continue to be drivers of the revolutionary changes already underway.



Erich Fritz
Managing Director

Industrial Tech Trends to Watch

After initial COVID-19 shocks, companies of all industries have and are reviewing adequacy, resilience and vision of existing strategies and operations. Immediate technology and behavioral impacts (e.g., remote workforce transition, collaboration tool adoption and distributed work environments) have rewarded forward-looking tech, automation and connected strategies. Medium-term, we expect the tectonic shifts underway to catalyze a new wave of connected, autonomous technology adoption as historically backward-looking organizations re-platform and digitize, driven by existential and competitive threats and shifting strategic objectives. We believe such changes will spur company formation and coincide with a changing financing dynamic behind the scenes.

Enterprise AI Takes Center Stage

Enterprise "AI," in the context "IoT" (or, as we define it, "AIoT") is one of the few technology buzzwords that has surfaced in recent years. Our definition of the concept is the confluence of IoT and AI with the proliferation of distributed connected devices (edge computing), enlarging the digital surface area over which software (AI) can optimize and automate business processes.

It was only recently that AIoT began to transform businesses, optimize processes and create quantifiable economic value. Looking back over the past three, five and even ten years, IoT was prematurely hyped to a significant extent. We had an unstructured, fragmented marketplace that created an abundance of data for monitoring and visualization but without the "last mile" of analytics, thus limiting overall business value. It's only been in the last few years that we've seen tangible ROI in the form of analytics-generated process and yield optimization, cost savings and a reduction of wasted materials in the manufacturing sector, to name just a few examples.

These have been exciting developments to watch. With the emergence of AI, IoT has evolved from a data collection activity to a value creation initiative, with the ultimate use case expanding well beyond data collection and storage to the application (e.g., digital twins, machine health) and monetization of captured data – often in line with the ESG / sustainability movement.

Venture Capital Awakens to a New Paradigm

For years, technology advancements (computing, connectivity), enterprise ambitions (digital transformation) and mindset shifts (data residency, software abstraction) have benefitted software broadly. Tenable value propositions (e.g., value extracted > cost) have given rise to new business models, and the rise of SaaS has inflated addressable markets and intrinsic values across Enterprise IT.

We expect that by 2022 / 2023, non-traditional technology investors – such as hedge funds and asset managers – will invest more in private tech companies compared to traditional Silicon Valley-style venture capitalists.

In any new market, venture capitalists enter and provide expensive capital for high-risk, high-reward propositions at the technology frontier. In enterprise software, the information advantage has deteriorated, and risks have become better understood and more precisely measured, thereby (1) democratizing the ability to price, (2) reducing VCs' competitive advantage, and (3) attracting massive flows of non-traditional capital.

Such historical dynamics have pushed VCs into new, unchartered waters, which we're beginning to see in crypto, the metaverse and lastly, Operational Technology (OT) – rewarding the stakeholders of such companies in the form of liquidity, negotiating leverage and elevated valuations.

Premium Multiples for Strategic Assets Within Industrial Technology

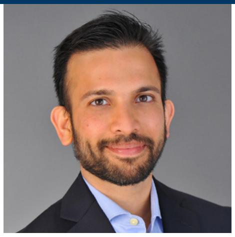
Both 2020 and 2021 have been punctuated by waves of high multiple Industrial Technology acquisitions – such as Arcos, Aras, Arena, Innovyze, Fetch Robotics, Seequent, Fiix Software, Open Systems International, and OSIsoft, to name a few.

Acquirors are underwriting different theses as part of their M&A ambitions. For example, Industrial OEMs, which by and large don't possess adequate software DNA for internal development, are investing heavily in Industrial Software acquisitions to acquire the necessary capabilities and talent needed to capture new digitization opportunities in IIoT – to stave off commoditization and improve competitive position. For these OEMs, it is critical to keep the acquired companies close enough to realize synergies, but sufficiently distant so as not to strangle the businesses. Conversely, tech titans of varying motivations generally are viewed as better able to understand value demonstrations and unlock post-integration value (e.g., full TAM accessibility vs. that limited to an OEM customer base). Tech strategics are investing and partnering to pave the way for greater integration, with the expectation that acquisitions will coincide with the emergence of scaled winners. We believe that Seeq, Falkonry, Nikola Labs, Noodle.ai, Peaxy, MachineMetrics and Augury within analytics and Nazomi, Claroty and SCADAfence within critical infrastructure security are rising start-ups to watch in 2022.

Supply Chain, Manufacturing and Telematics / Fleet Management to See Increasing Strategic and Private Equity Activity

The supply chain has been at the conspicuous forefront amid the height of COVID, with 75%+ of companies experiencing supply chain disruptions. This has caused a broad reassessment of supply chain adequacy and the current conditions showcase the need for durable change. Previous disruptions were typically regional and quickly forgotten, but COVID is the first global disruption in decades and a continuation of a trend towards volatility, complexity and uncertainty; supply chain visibility, agility, flexibility and resilience therefore are taking center stage. Identified deficiencies, value chain diversification (e.g., repatriated / localized manufacturing) and risk mitigation strategies will catalyze continued near- and long-term investment in supply chain technology. We expect companies that employ as-a-Service / OpEx models to benefit as manufacturer uncertainty and liquidity concerns will supersede historical CapEx spending predilections (e.g., organizational inertia, budgeting, low cost of capital).

We believe that telematics and connected fleet solutions also are poised to benefit in the spirit of economics, resilience and compliance. Examples include the monitoring of mobile assets with less human capital (i.e., aging trucker population), asset utilization optimization, route optimization, real-time driver intelligence and safety, chain of custody and liability assignment. We believe that significant telematics consolidation and take-privates will occur in 2022 to create a healthier market, allowing market participants to better compete for global RFPs and more effectively transition to recurring models away from the public spotlight



Ubaid Dhiyan
Director, Software

Cloud-Native Technology Evolution Empowers Businesses in New Ways

Even as enterprises extend already-drawn-out pandemic recoveries in 2022, many will continue to look for new ways to collaborate and use data in more productive ways. Advances in cloud-native infrastructure hold the key to successful enterprise deployment of these efficiency-enhancing developments.

As enterprises embrace cloud-native technologies that move them further away from their legacy on-premises infrastructure, innovations in data representation assume greater importance to their businesses. The white-hot space of next-generation infrastructure software strives to address challenges inherent in building and running applications, as well as developing data management infrastructure, in the cloud. Enabling cross-team and cross-organizational collaboration is a key goal of these cloud-native technologies.

As cloud-native solutions grow and evolve, they are empowering workers, accelerating businesses and altering the landscape in multiple ways. Cloud-native technologies have ushered in a new paradigm for how data is organized, stored, retrieved and used. Driving innovation in these areas are next-generation data management companies that originated in the open-source ecosystem and that now have graduated to providing enterprise-level databases and data management technologies as more infrastructure moves from on-premises to the cloud.

Finally, as more investment pours into the space and raises valuations, a larger number of strategic buyers are placing greater emphasis on corporate venture investing and acqui-hiring, rather than paying stratospheric multiples that even less-successful startups have started to expect and command. We expect this trend to accelerate in 2022 as valuations in the space continue to rise.

Improving Data Representation

Stepping back, the upsurge in velocity, volume and variety of data creation has complicated how organizations manage and interact with data, a trend that requires new ways of representing all this information. The data mesh has emerged as a powerful new platform architecture that standardizes the way data can be represented so that it can be stored, analyzed and used more efficiently. Furthermore, a data mesh enables better observability; this involves understanding a company's data, its creation, how it moves and changes, and how any change to the data affects the models, analytics or conclusions reached.

A data mesh also broadens the opportunities for applying other technologies to data. A data mesh approach can help clean a company's data, as well as track the data's provenance and movement throughout an organization, thereby making it easier to use AI/ML to get better insights into and from that data. Monte Carlo, DBT and Cribl are among some of the more notable companies working on data mesh and observability that have announced large raises of early-stage capital in the recent past.

Cloud-native technologies have ushered in a new paradigm for how data is organized, stored, retrieved and used.

Next-Gen Data Infrastructure is Thriving

As enterprises transition away from walling off their data in silos toward using their data across different applications within groups and even across organizations, innovators that develop and sell technology enabling seamless data use will flourish. Until recently, the database business has been dominated by long-established solutions from gargantuan enterprise software providers such as Oracle, SAP and Microsoft, as well as a number of open-source offerings. But as more enterprise technologies and applications move from being on-premises to cloud-native, many of the newer data-management companies with open-source foundations have found success by developing enterprise-class products adapted for those next-generation applications.

Several providers are now building data infrastructure software for real-time analytics that is far more suitable for next-generation enterprise applications. Prominent next-generation data infrastructure software companies that continue to show significant momentum include Snowflake, MongoDB, Confluent, SingleStore, Redis and CouchBase.

Adapting to Higher Valuations

Heading into 2022, infrastructure software valuations remain elevated, especially for companies that have achieved some meaningful scale and have grown rapidly. Torrents of capital flooding into the space and new providers of financing have driven these valuations higher, forcing many larger acquirers of technology – including strategic buyers – to re-think their M&A and talent strategies. Acquiring a business or technology has gotten increasingly expensive and, as engineers command ever-higher salaries and remain harder to find, strategics have begun to pursue smaller companies that may have failed to find product-market fit but have strong technology teams.

Additionally, large strategic players have stepped up corporate venture investing activities, transforming their Corporate Development teams to incorporate venture investment arms. Decibel Partners, an independent venture arm of Cisco, represents a prime example of this trend; Splunk, Atlassian, Twilio, Snowflake and numerous other large entities also have shown increasing venture investment activity.

Innovative, cloud-native technologies have opened new pathways for more flexible, efficient and productive data use by liberating infrastructures from on-premises technology restrictions. These technologies empower enterprises to draw greater value and insights from their data, unlocking enormous potential by making this data more easily storable, accessible and usable for analytics and other applications. The rapid evolution of the data infrastructure space presents numerous opportunities for those who can develop solutions that lend themselves better to enabling and supporting next-generation applications, as well as for investors in those companies.

Michael Meyer, Partner, Head of Capital Markets (left)
Jono Peters, Vice President (right)

Where Investors Can Find Yield

Conditions in the credit markets could hardly have been better in 2021. Investors, both institutional and retail, poured record amounts of money into high-yield bonds, CLOS and leveraged loans in a bid to capture yield in a low-rate world. At the same time, the strong post-COVID recovery kept defaults at low levels. There haven't been many times in history that showcased a combination of strong growth and ultra-low interest rates – but this past year was one of them. The upshot: yields and spreads, which already were low, went lower still, and volatility also was extremely limited. It was a great environment for investors, but even more so for issuers who took advantage of the chance to borrow record amounts. By Oct. 1 2021, U.S. issuance of CLOs had already broken the annual issuance record set in 2018.

The tech sector also offers a chance to lend into growth. Investors who put money into a young, expanding software company can invest early and often, and in some cases, get warrants or other equity exposure that can boost returns.

Where do we go from here?

The question now is: Where do we go from here? The technicals in the market are setting up for another round of lower rates.

Investors looking out at the landscape in 2022 must be wondering where they can put money to work that will earn any income at all. The hunt for alternatives will drive more of them to a market we know well: middle-market private leveraged finance, especially in the technology sector.

This is a space with many attractive features. The most obvious is the opportunity to capture yields in the high-single-digit to low-double-digit range, compared to the 2 to 3 percent yields available from syndicated loans in mature companies. The tech sector also offers a chance to lend into growth. Investors who put money into a young, expanding software company can invest early and often, and in some cases, get warrants or other equity exposure that can boost returns. The financial markets don't give investors something for nothing, and they are not for everyone – these higher-returning instruments come with diminished liquidity and heightened risk. But investors considering them should take note of how well the vast majority of tech businesses held up during the COVID-19 period. When much of the economy shut down, many of these firms had a growth spurt as individuals and companies made the shift to remote work. That phase may be over, but there is no indication that the appetite for technology tools will recede along with the virus. This is a resilient sector with staying power.

There are two plausible scenarios for credit in 2022. One is more of the same – solid growth coupled with very low yields. At the moment there is nothing obvious that suggests the current rally will come to an end anytime soon. But if history is a guide, a correction can't be ruled out. The last mini-downturn was in 2018 which means we are in line for a pullback. What might trigger it? A change in Fed policy would be one possibility. An external shock – say heightened tensions between

China and Taiwan, or a massive global cyberattack – would be another. Should there be a correction, stocks would fall and yields would rise. While activity in the credit markets would slow, it would not go away.

Interestingly, one market we follow closely did experience a correction in 2021. The market for SPACs – special purpose acquisition companies – came to an abrupt halt in March after months of furious activity. This was a classic case of too much money chasing an idea. The shakeout should knock out some of the weaker players and leave behind a healthier market, one with stronger sponsors in a position to offer more attractive terms to would-be investors. That is a positive development, and represents a welcome maturation of an asset class we believe has real value.

SPACs give investors a chance to put money into companies that in the past would have been scooped up by private equity firms. Thanks to SPACs, the number of publicly-listed companies is growing again after more than a decade of decline. Clearly that is a plus. For the companies themselves, especially technology businesses, SPACs represent a new source of capital beyond the traditional strategic and private buyers and regular-way IPOs. That increased competition/optionality also is a plus.

To sum up, 2021 was a robust year in the credit markets. No one can say with certainty whether 2022 will be as strong, but two things are clear: the world is awash with funds looking for a place to earn a respectable yield, and growing companies have an ongoing need for capital to continue their growth trajectories. As long as both are true, there are reasons to be optimistic about the year ahead.


Emily Todd Anderson Managing Director, Head of Sponsor Coverage (left)
Dean Riskas, Vice Chairman (right)

A Record Year For Deals

All the ingredients were in place to make 2021 a record year for mergers and acquisitions; buyers had money to spend, interest rates were low, the post-COVID economic recovery was strong and equity markets were buoyant. A vibrant market for IPOs, both via SPACs and traditional approaches, made getting public easier to achieve. Private equity firms were active participants in the deal scene both as buyers and sellers. They came into 2021 with lots of dry powder and a need to put money to work. There was robust activity throughout the year, paced by a series of large deals. Many PE firms found that 2021 was a good time to move larger assets that had been sitting in their portfolios, given the strong public and private investor appetite. At times there was so much competition for high-quality assets that firms quickly realized they needed an edge in order to compete for deals; many bowed out of processes when they didn't see a clear path to winning.

That is the high-level view; underneath the surface, a number of trends were at work that truly reshaped the private equity landscape. There is every indication that these trends will continue to play out in 2022.

Intensifying interest in growth equity

The first of these is the intensifying interest in growth equity. More firms (including many that traditionally have steered clear of high growth, minority investing) have launched their own growth equity funds. The motivation is clear: in the most dynamic parts of the economy – technology, health care, fintech, technology-enabled consumer businesses – growth equity is often the optimal way to invest early enough to get a piece of these best-of-breed companies. Buyers that wait until these companies reach the "normal" private equity thresholds for size and profitability risk missing out on desirable deals. They may find another growth equity firm already has taken a meaningful stake in the target, or they may be forced to pay a prohibitively high price when the asset comes to market. Private equity isn't becoming venture capital, but it is encroaching on that territory – and PE firms are pushing down into private equity at the same time.

But timing is not the only thing that changes as private equity embraces growth equity; deal structure changes too. The founders and key personnel at technology firms want skin in the game, which means they expect to remain shareholders post-transaction. In technology, people are incredibly valuable, and in some cases may be viewed as being more valuable than the products themselves. As a result, private equity firms may decide it makes more sense for them to participate alongside the management team – outside investors need to be seen as partners, not merely as owners.

Another change: Some private equity firms, which typically have sold their entire stakes in a change-of-control deal, may decide they, too, want to sell only a

Private equity has significant amounts of money to spend, and the creative minds in the technology sphere keep coming up with exciting companies for them to invest in or acquire.

portion of their holdings and stay partially invested to capture future gains. In growth equity, deals can be put together in a variety of ways – there is room for creativity as all parties search for an optimal structure to capture future upside.

Platform plays

Another trend we see is continued interest in platform plays. Financial acquirers look to buy a strong initial "platform," with the intention of tucking in several complimentary assets over the subsequent holding period. There are distinct advantages to this approach. For example, it allows financial acquirers to act like strategic buyers – paying up for good assets because they now have the ability to realize synergies through these combinations. Beyond that, by using this approach private equity can incubate and grow companies into scaled, category leaders, ones that can command strong multiples at exit.

Focus on ESG

Finally, there is a renewed focus on ESG. Private equity firms have talked about this for a long time, but over the past 12 months we have seen that talk backed up by real investment dollars. Firms increasingly are buying assets that support renewable energy, sustainability, diversity and other ESG initiatives, and they are applying an ESG lens when they evaluate investments across all industries. Institutional investors, both in the U.S. and globally, have made ESG a priority, and they expect the private equity firms they back to do the same.

The future can be hard to see, and the pandemic has taught us that unpleasant surprises with dramatic consequences can come out of the blue. No one can say for sure at this point what impact the latest COVID variant will have on the economy or the markets but, for now, 2022 looks to be shaping up as another strong year. Private equity has significant amounts of money to spend, and the creative minds in the technology sphere keep coming up with exciting companies for them to invest in or acquire.

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