

OUTLOOK 2025

Return to Momentum

The logo for Union Square Advisors is located in the top right corner. It consists of a dark blue square with a white border, containing the text "UNION SQUARE ADVISORS" in white, uppercase, sans-serif font. The square is slightly offset to the right, revealing a green layer underneath.

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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 advised on more than 190 transactions, with total transaction value in excess of \$120B.

Welcome

Episode VIII: A New Hope

Dear Friends,

It is hard to believe that Union Square Advisors is nearly halfway through its 18th year of operations – and that this is our 8th annual Outlook Report. Time definitely moves quickly at the leading edge of the technology universe! Whether you are a newcomer to the Outlook Report or a veteran reader, we appreciate your spending some time with us as the USA team recaps the past year and discusses our firm's views on what lies in store for technology companies and investors in 2025.

We started last year's Outlook Report welcome letter with the observation that "2024 is off to a good start – but the ride is likely to remain bumpy for a bit," and in retrospect that seems to be a pretty good summary of how things played out. Although the expectations regarding 2024, at least in some quarters, were for a bounce back to near-2021 levels of activity, our view at the time was a bit more muted.

We did correctly anticipate an increase in both technology financing and M&A activity volumes across the board, but we also highlighted several ongoing headwinds that had challenged the markets in 2022 and 2023 (including inflation, interest rates and geopolitical crises) and that were likely to persist at some level into 2024. Check. On the other hand, we certainly did not anticipate the seemingly gravity-defying strength of the U.S. economy in comparison with the rest of the world, nor did we explicitly forecast the timing of the two step-function increases in engagement and transaction activity levels that we experienced in the back half of 2024.

Regarding this latter point: coinciding first with the end of the summer season, and then with the completion of the U.S. election cycle, these two readily observable activity increases were twin heralds of the uptick in overall technology deal momentum that many had been expecting for months. We saw this firsthand in both the number and quality of companies that came "off the bench" in Q4 last year with a desire to work with USA to raise capital or pursue a strategic transaction (or both) in 2025. That made for a busy end of the year, and this dynamic has continued (in fact, strengthened) as we have crossed over into the new year. It is this increased level of activity that led us to subtitle our welcome letter "A New Hope."

Looking forward into the 2025 Outlook Report, you will see a significant increase in the number of contributing authors; this is driven by the meaningful additions we have made to our senior ranks during the past year. After our formal launch of a HealthTech advisory practice in 2023 with a strong, expanded team (a strategic move that continues to bear great fruit for USA), we followed up in 2024 with five senior additions to our Capital Markets and Coverage teams. This has enabled us to further expand the range and scale of the financing solutions we can provide to our clients (including in the extremely active markets around GP-led transactions for equity investors), and to broaden the scope of our work with companies and investors in the AI+data+infrastructure, vertical software, and governance, risk and compliance (GRC) sectors.

We predict that each of these areas will showcase significantly greater transaction activity in 2025, and we are pleased to have gotten a jump on that activity with the proactive strengthening of our senior officer corps.

You also will see herein a dive into several other sectors that we believe will see greater transaction volumes in the year ahead: front office software; retail and ecommerce solutions; pharma and life sciences software+data, value-based care solutions; back office, procurement and legal software; supply chain and logistics solutions; and construction and industrial technologies. This does not capture the full gamut of our team's broad sector expertise, but it does serve as an excellent "short list" for the areas of the technology landscape that we believe will showcase significant increases in strategic and financing transactions during 2025.

No discussion of the state and direction of the landscape in 2025 would be complete without further touching on the enormous focus on Artificial Intelligence we continue to see – from the billions of dollars of new capital raised at eye-popping valuations to the just-unveiled U.S. government "Stargate" program to the potential disruption from DeepSeek, AI continues to dominate many aspects of the technology zeitgeist. You'll find the AI topic more than ably covered by several of our contributors in the ensuing pages, but let us add a few thoughts here as well:

AI will change the nature of virtually every knowledge worker's job over the next 3-5 years and beyond, and it ultimately will produce significant benefits for organizations in the form of revenue uplift, expense reduction and broad human productivity increases. Many jobs will be lost, and created, in that process.

AI will not destroy the world (on its own), but it has the potential to be an incredibly malevolent force when weaponized in the wrong way. Despite the new U.S. presidential administration's rollback of Biden-era AI safety measures and usage guidelines, organizations and individuals eventually will demand protocols that protect them from the worst of what AI can do if it and its developers are left wholly unregulated.

AI will be expensive to implement at scale over time, with as-yet-undetermined ROIs. It is not a panacea; it's a hugely powerful tool for which we are still looking to find and develop the most compelling use cases. Getting that right will cost a lot of money, and eventually it will be the enterprises and consumers leveraging AI that will foot that bill.

AI will not be a never-ending mine of gold for all investors (or acquirors). As with every technology sector

ever charted, there will be winners and losers, with new development and delivery approaches replacing their predecessors at a rapid clip. There is a "trail of tears" moment coming for some investors who piled capital into early AI investments without a solid understanding of how they would achieve their desired returns.

AI will provide stronger near-term returns for investors in companies building infrastructure and deploying at the edge vs. those simply searching for the "killer app." The age-old advice to sell picks and shovels in order to best capture value has never been more true.

In conclusion, we would reiterate what has been our guiding principle since the founding of Union Square Advisors: we are here to help. As stated above, the path for pursuing strategic or financing transactions in the tech sector, and the potential for a better outcome in those pursuits, should improve markedly throughout 2025. However, this does not mean that these transactions are easy for companies and their stakeholders to pursue, assess and complete. To repeat ourselves, the ride will still be bumpy – but it can be successfully navigated with the help of a deeply experienced and knowledgeable advisory partner. For the past 18 years we have built Union Square Advisors to be that trusted partner for you on your most important transactions, and we are tremendously grateful for the trust and support you have shown, and continue to show, us on that journey.



A handwritten signature in black ink, appearing to read "Carter McClelland".

Carter McClelland
Chairman and Co-Founder



A handwritten signature in black ink, appearing to read "Ted Smith".

Ted Smith
President and Co-Founder

P.S. Yes, "Star Wars" fans, we DO know that "A New Hope" actually was the formal title of Episode IV in the movie lineup; please forgive us our use of artistic license here...

Technology M&A

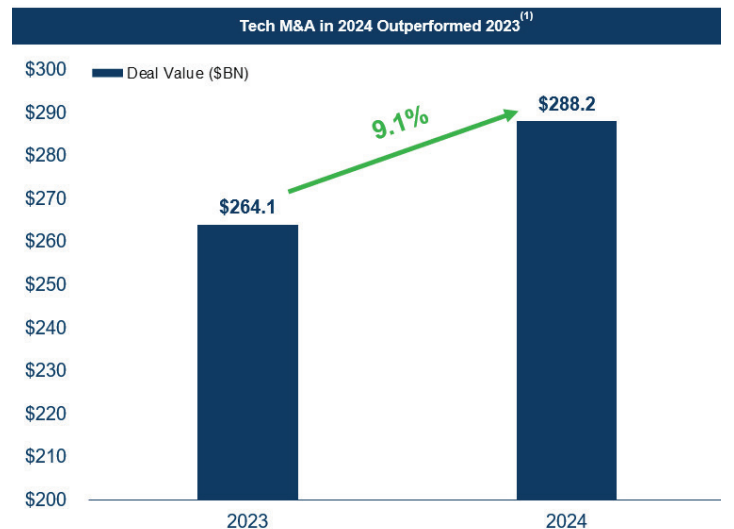
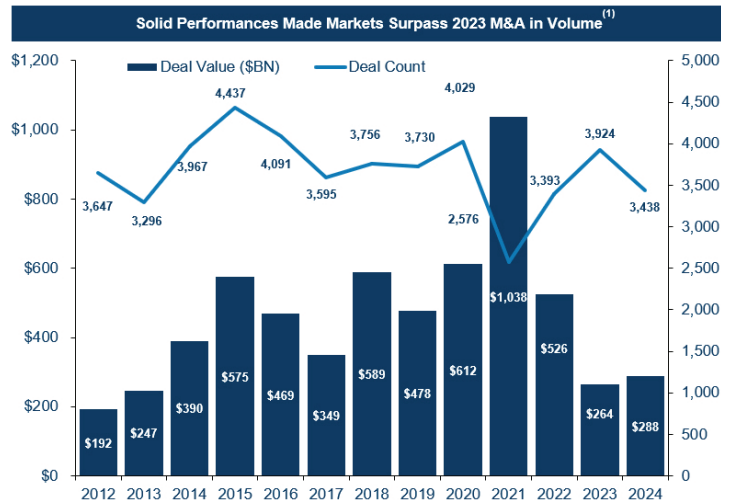
TECHNOLOGY M&A

2024 Was a Better Year, and 2025 Will Be Very Robust

We enjoyed a somewhat improved year in global Technology M&A for 2024 in comparison to the prior year. 2024 volume growth was supported by lower inflation, corresponding interest rate cuts, extremely strong equity markets and improving economic growth (at least in the U.S.). Tech M&A saw some rebound in activity from strategic buyers; private equity buyers remained active, but deals were tougher to get done in a still-elevated interest rate environment.

After two consecutive years of declining global tech M&A volume in 2022 and 2023, total 2024 volume was \$288B, up 9% Y/Y vs. volume of \$264B for 2023.⁽¹⁾ However, continued higher interest rates in comparison to recent historical levels, supply chain constraints, global conflicts, U.S. election uncertainty, the persistent valuation gap between buyers and sellers, a continued stringent regulatory environment, and the disruptive impact of AI on business strategies all produced headwinds that kept this year's rebound in M&A more measured.

¹ 451 Research M&A Knowledge Base data as of 12/31/24.



Despite having only a modest improvement in overall M&A deal volume, we did experience an uptick in larger deals thanks to a 17% increase in transactions greater than \$1B. See the table for a full review of 2024 vs. 2023 activity.²

A Look at Tech Activity in 2024 Compared to 2023 ⁽¹⁾			
(\$BN)	2023	2024	Growth
Total			
Deal Volume	\$264.1	\$288.2	9.1%
Deal Count	526	395	(24.9%)
\$1BN and Over			
Deal Volume	\$206.1	\$242.0	17.4%
Deal Count	50	65	30.0%
\$500MM to \$1BN			
Deal Volume	\$21.4	\$17.1	(19.7%)
Deal Count	29	24	(17.2%)
\$100MM to \$500MM			
Deal Volume	\$28.5	\$24.1	(15.5%)
Deal Count	122	102	(16.4%)
Under \$100MM			
Deal Volume	\$8.1	\$4.9	(38.9%)
Deal Count	325	204	(37.2%)

¹ 451 Research M&A Knowledge Base data as of 12/31/24.

2024 M&A Activity and Themes³

M&A activity remained robust across security, cloud infrastructure, risk management, vertical software and AI, with large strategic buyers coming back and active in 2024 across these themes. Transactions included: Synopsys/Ansys (\$35.0B, engineering software), Verizon/Frontier (\$19.9B, telecom fiber), Omnicom/IPG (\$13.3B, marketing and sales solutions), HPE/Juniper (\$13.2B, AI-native networks), Siemens/Altair (\$10.1B, engineering software), T-Mobile & KKR/Metronet (\$9.8B, regional fiber), Fastweb/Vodafone Italia (\$8.7B, telecom operator), IBM/Hashicorp (\$6.4B, multi-cloud automation software), Renesas/Altium (\$5.7B, electronics design software) AMD/ZT Systems (\$4.6B, cloud computing and AI business applications), T-Mobile/UScellular Wireless (\$4.3B, wireless operations) Nokia/Infinera (\$3.8B, optical telecom equipment), Vocus/TPG Telecom (\$3.4B, fixed line and fiber network assets), Cohesity/Veritas Enterprise (\$3.0B, data protection), Mastercard/Recorded Future (\$2.7B, AI-enabled security software), SES/Intel-sat (\$5.0B, satellite communications), and Salesforce/Own (\$1.9B, cloud-to-cloud data protection software).

Despite higher cost of financing, private equity firms remained active and pursued sizeable transactions across these tech themes as well, including: Blackstone/AirTrunk Operating (\$16.1B, datacenter platform), CD&R & TowerBrook/R1 RCM (patient revenue and experience tech), Blackstone & Vista/Smartsheet (\$7.7B, AI-based enterprise work management software), Permira/Square-space (\$7.2B, SMB website builder), Advent & CDPQ & Novacap/Nuvei (\$6.3B, advanced payment technology),

Renesas/Altium (\$5.9B, semiconductor EDA), Bain/PowerSchool (\$5.6B, education technology), Thoma Bravo/Darktrace (\$5.0B, cybersecurity), KKR/Instructure (\$4.7B, learning management software), Bain/Investnet (\$4.3B, wealth, portfolio and practice management software), TPG/Aareon (\$4.2B, property management software), Apollo/IGT (\$4.1B, gaming and digital business), KKR/Broadcom EUC Division (\$4.0B, digital workspace solutions), Blackrock/Preqin (\$3.2B, private markets data provider), Cinven/idealista (\$3.1B, online real estate classifieds), HG Capital/Auditboard (\$3.0B, connected risk platform), EQT/Avetta (\$3.0B, supply chain risk management), and EQT/Perficient (\$3B, IT consulting), EQT & CPPIB & Temasek/Keywords Studio (\$2.9B, video games services provider), Veritas/NCR Voyix (\$2.5B, digital banking), Vista/Jaggaer (\$2.4B, procurement and supplier software).

Union Square Advisors' M&A transactions also mirrored many of this year's tech industry trends; transactions included: Carlyle/Exiger (AI-enabled supply chain and third party risk management), Riskconnect/Ventiv (insurance risk management), Exiger/XSB (AI-based parts intelligence), Exiger/VersedAI (AI-driven supply chain visibility), Yext/Hearsay (customer communications platform for financial services), Diversis/Infotech (construction software), Waud/Science Exchange (life sciences procurement technology), and Verint/Cogito (AI coaching agent for contact centers).

² Ibid.

³ Transaction data from 451 Research M&A Knowledge Base, S&P Capital IQ, Pitchbook, Renaissance Capital and Mergermarket.

With the modest uptick in M&A activity in 2024, what were our clients saying and doing this past year?

STRATEGIC BUYERS	Open for buyside M&A; tend to focus on companies they have been tracking or are on their roadmap, especially those with which they already have some type of commercial partnership; not interested in auctions, and not going to overpay.
PRIVATE EQUITY BUYERS	Not enough quality assets coming to market; focusing on profitability over growth, although still like and will pay for growth; high interest rates cap the multiples they can pay; need an angle in order to stretch on value, and are quick to determine if they do or don't have one.
PRIVATE EQUITY SELLERS	Not inclined to take assets to market in an environment that still has challenges; may have a few strategic conversations outside of a formal process, just to test the water; in many cases considering secondary sale, NAV or GP solutions to prolong the investment horizon.
VENTURE CAPITAL SELLERS	Need to triage which portfolio companies to continue to back and which to effectively cut loose; willing to do flat/down rounds with insiders as venture capital money is more limited; Need to "dress up" and exit the underperformers in a sale, as the IPO window remains almost completely closed.
PRIVATE COMPANIES	Assessing whether they should sell near-term or wait; striving to access growth capital where investment dollars are limited; in many cases pursuing a dual-track financing + sale process; actively engaging with strategics to support a deal in advance of a process; also evaluating merging with another player(s) for scale.

Select 2024 M&A Transactions⁴

Financial Services & Data	Security	Application Software		
08/06/24 VERITAS CAPITAL / NCR VOYIX \$2.5BN*	09/12/24 mastercard / Recorded Future \$2.7BN	09/24/24 Blackstone / VISTA / smartsheet \$7.7BN*		
07/11/24 BainCapital / INVESTNET \$4.3BN*	04/26/24 THOMABRAVO / DARKTRACE \$5.0BN*	06/07/24 BainCapital / PowerSchool \$5.6BN*		
06/30/24 BlackRock / PREQIN \$3.2BN*	02/08/24 COHESITY / VERITAS \$7.0BN	05/13/24 PERMIRA / SQUARESPACE \$7.2BN*		
04/01/24 Advent / nuvei \$6.3BN*	<th>Supply Chain & Risk Management</th> <td> <th>Infrastructure Software & Semiconductors</th> </td>	Supply Chain & Risk Management	<th>Infrastructure Software & Semiconductors</th>	Infrastructure Software & Semiconductors
02/19/24 Capital One / DISCOVER \$45.3BN	08/13/24 VISTA / JAGGAER \$2.4BN*	09/04/24 Blackstone / AIRTRUNK \$16.1BN*		
<th>Telecommunications & Wireless Networks</th> <td>05/23/24 Hg / AUDITBOARD \$3.0BN*</td> <td>08/19/24 AMD / zt Systems \$4.6BN</td>	Telecommunications & Wireless Networks	05/23/24 Hg / AUDITBOARD \$3.0BN*	08/19/24 AMD / zt Systems \$4.6BN	
10/14/24 VOCUS / tpg TELECOM \$3.4BN	04/02/24 IEQT / Avetta \$3.0BN*	04/24/24 IBM / HashiCorp \$6.4BN		
09/15/24 verizon / FRONTIER \$19.9BN	<th>Vertical Software</th> <td>02/14/24 RENESAS / Altium \$5.7BN</td>	Vertical Software	02/14/24 RENESAS / Altium \$5.7BN	
07/24/24 T-Mobile / metronet \$9.8BN*	12/9/24 OmnicomGroup / IFG \$13.3BN*	01/09/24 Hewlett Packard Enterprise / JUNIPER \$13.2BN		
05/28/24 T-Mobile / uscellular \$4.3BN	10/30/24 SIEMENS / ALTAIR \$10.1BN	<th>Media & Entertainment</th>	Media & Entertainment	
04/30/24 SES / INTELSAT \$5.0BN	08/01/24 CD&R TOWERBROOK / R1 \$8.6BN*	07/26/24 APOLLO / IGT \$4.1BN*		
03/15/24 FASTWEB / vodafone \$8.7BN	07/25/24 KKR / INSTRUCTURE \$4.7BN*	07/23/24 IEQT / Keywords \$2.9BN*		
	01/16/24 SYNOPSYS / Ansys \$35.0BN			

⁴ Dollar amounts represent Enterprise Values for transactions. Transaction data from 451 Research M&A Knowledge Base, S&P Capital IQ, Pitchbook, Renaissance Capital and Mergermarket.

Outlook for 2025

We believe 2025 will be a very active year, with numerous tailwinds that will support the continued increase in activity levels. Drivers include:

- Healthy capital markets will drive activity for financings and exits.
- Strategic buyers are returning to M&A – both horizontal and vertical-focused deals, as well as divesting/spinning out of non-core assets.
- Private equity buyers continuing to deploy capital for add-ons and new platforms; declining interest rates will lower borrowing costs and support higher valuations.
- Venture and growth equity firms can't keep supporting cash-burning portfolio companies indefinitely and will feel the pressure to return capital to LP investors; they will accelerate their M&A sell-side activity, and also seek other liquidity solutions (e.g., NAV loans and GP solutions).
- High-quality assets still will command double-digit ARR acquisition multiples.
- For others, valuation gaps will continue to narrow, aided by deal structuring to bridge differences (e.g., stock-for-stock deals, earnouts, structured & seller financing).
- IPO markets will continue to reopen, slowly, for scaled/differentiated businesses, creating dual track (M&A/IPO) liquidity paths for a select few companies.
- The new U.S. administration will focus on extending personal tax cuts, lowering corporate taxes and limiting at least some aspects of FTC and SEC regulation, which should drive increased M&A activity as well, particularly for (most of) the Big Tech companies.
- While due diligence processes will continue to be prolonged, increased use of reps & warranty insurance and other contingent liability insurance products will help shift the risk away from selling stakeholders and make deals more possible to complete.
- Tech M&A activity will continue or accelerate in several areas, including risk and compliance, security, cloud infrastructure, digital transformation, vertical market solutions, data analytics & AI, next-gen fintech and HealthTech.

Despite these positive market drivers, we continue to monitor the macroenvironment and potential headwinds, including expansion of the conflicts in the Ukraine and the Middle East, rapid increase in tariffs, any rebound in inflation, any prolonged supply chain constraints, and rise in CFIUS scrutiny if U.S. policies become more protectionist.

As a whole, the Technology M&A market remains challenging to navigate, but it IS improving. As executives, board members and shareholders evaluate the strategic and financing priorities for their companies, Union Square Advisors is ready to assist and advise in that navigation – especially as the seas remain somewhat choppy despite the rising tide of fortune.



Wayne Kawarabayashi

Partner, Chief Operating Officer, Head of M&A



Devon Ritch

Partner, M&A



Phil Kim

Managing Director, M&A

Technology Capital Markets

DEBT AND EQUITY MARKETS

Strong Rebound in 2024 Driving Momentum Into 2025

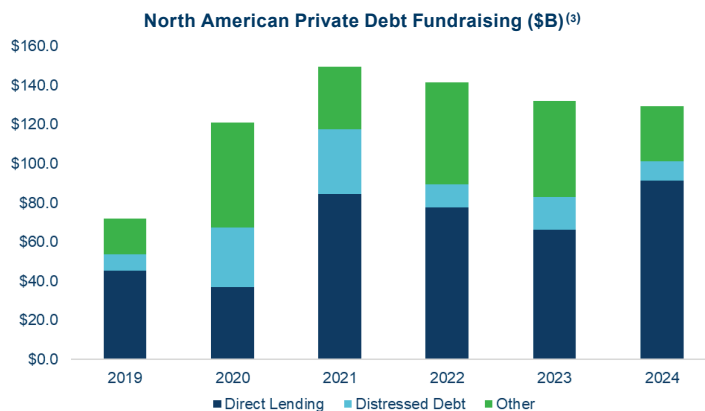
The capital markets saw a strong recovery in 2024 across the full debt-equity spectrum, following a challenging 2023. We expect this momentum to continue in 2025 and are optimistic that this rising tide will help lift the M&A markets as well.

Debt Capital Markets

2024 saw a steady improvement in the debt markets with the occasional frantic flurry of activity. This resulted in total issuance across all debt products of ~\$1.4T, placing 2024 as the strongest year of issuance since 2021.⁽¹⁾ While private credit continues to drive a meaningful share of overall transaction volume, the syndicated market ended the year at a breakneck pace on the back of interest rate cuts and consistent CLO formation. The result of consistent fundraising, increasing competition and decreasing rates has meaningfully improved terms for borrowers, a welcome development as sponsors look to test the M&A waters in 2025.

Private Credit

The past twelve months were no exception when it comes to the theme of private credit prominence in the debt markets. 2024 saw the formation of 43⁽²⁾ new funds. Combined with existing funds, the total capital raised for private debt strategies in North America over the



year amounts to \$129.4B, with direct lending making up \$91.5B of that total.

This capital has been spread somewhat evenly across a range of transaction types. Refinancings and repricings were the singular standout with over 44% of private credit volume, as borrowers looked to improve their terms given the supportive market environment. Notably, dividend recapitalizations have seen an increase in acceptance among private credit lenders. At the root of this trend is the need for these lenders to put capital to work, driven by three key factors: first, an increasingly constructive syndicated market creates competition making it harder for private credit funds to win; second, the sheer dollar volume required to be put to work in

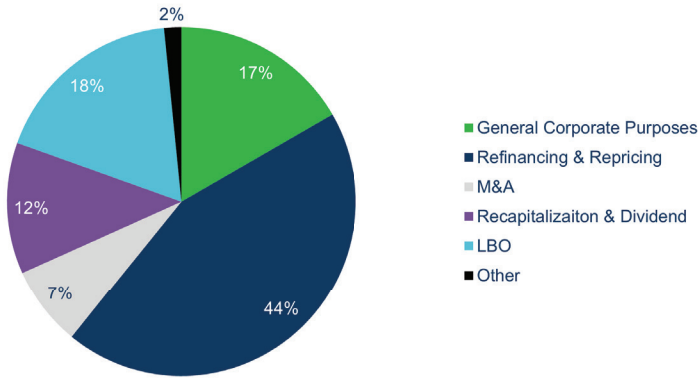
¹ Pitchbook data, January 2025.

² Ibid.

³ Crain Communications', "Pensions & Investments" data, October 2024.

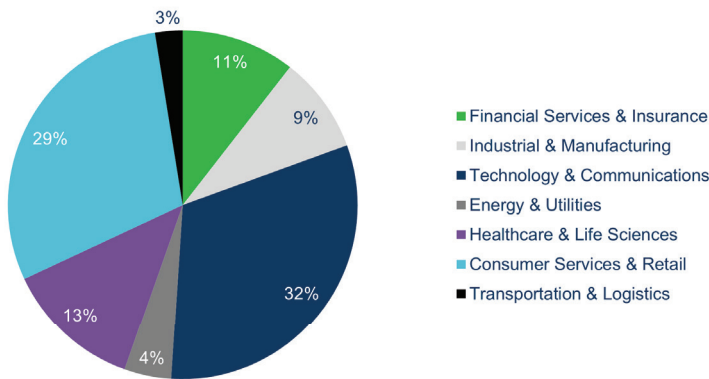
order to keep up with fundraising means that traditionally out-of-favor transaction types must be considered; and finally, sponsors are desperate to generate liquidity after extended softness in the M&A and IPO markets – meaning that private credit funds, equally desperate to maintain strong relationships with these sponsors for future deal flow, are broadening their credit apertures for key relationships.

2024 US Private Credit Volume by UoP⁽⁴⁾

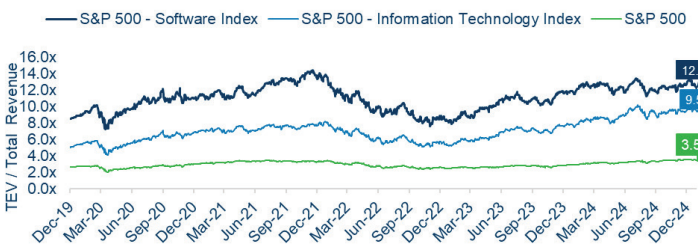


Technology has been a particular favorite of the private credit industry with ~32% of private credit dollars this year going into the tech sector. As opposed to other historical favorites such as healthcare, valuations in technology have held up better in the weaker M&A environment, providing additional comfort to lenders.

2024 US Private Credit Spending by Sector⁽⁵⁾



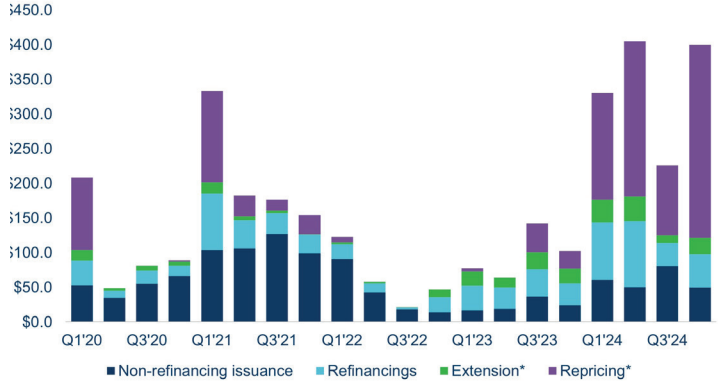
Index TEV/Revenue Multiples Over Time⁽⁶⁾



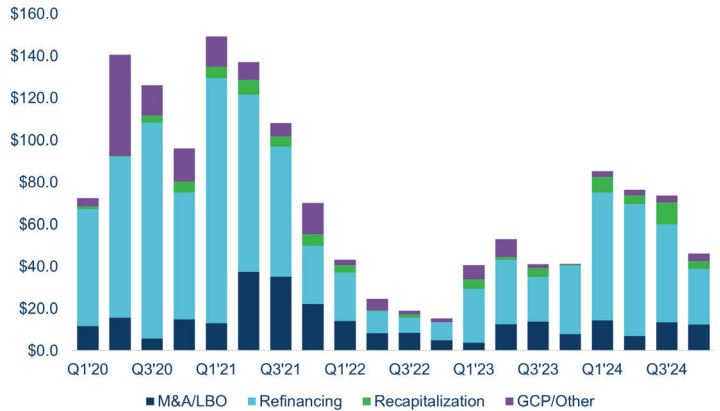
Syndicated Debt

Having been slow but steady for the better part of eighteen months, the syndicated market came roaring back to life in the latter half of 2024. Issuance across institutional loans cleared an eye popping \$500B by year end, a 113% increase from 2023.⁽⁷⁾ Similar to private credit, traditionally out-of-favor transactions such as dividend recaps and aggressive repricings were welcomed by the market as continued CLO creation and competition from private credit drove the issuance environment firmly into borrower friendly territory.

US Institutional Loan Activity (\$B)⁽⁸⁾



US HY Issuance Volume (\$B)⁽⁹⁾



US CLO Issuance – Quarterly⁽¹⁰⁾



⁷ Pitchbook report, "US Credit Markets Quarterly Wrap Q4 2024," January 2025.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

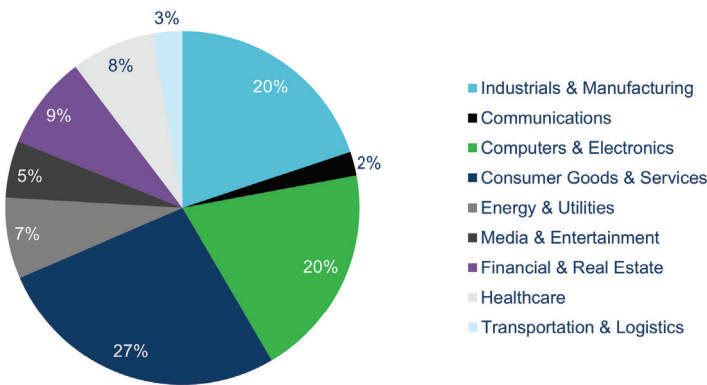
⁴ FitchSolutions, "CreditSights" data, January 2025.

⁵ Ibid.

⁶ S&P Capital IQ data, January 2025.

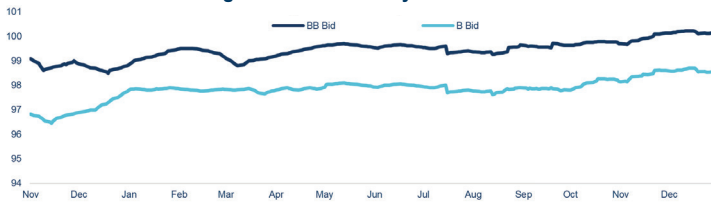
Not dissimilar from private credit, the syndicated markets have favored the technology sector this year, with ~20% of volume coming from the computers & electronics sector (a proxy for technology activity).

2024 US Institutional Loan Volume by Sector ⁽¹¹⁾



As a result of all of these factors the overall yield for high yield issuance dropped from 8.90% in Q4 2023 to 7.66% in Q4 2024 and the new issue TLB (single - B rating) spread dropped from 408bps in Q1 2024 to 354bps in Q4 2024.⁽¹²⁾ Combined with a decrease in 3-month SOFR from 5.40% at the beginning of the year to 4.49%⁽¹³⁾ at the end, borrowing costs decreased meaningfully in 2024.

Leveraged Loan Secondary Performance ⁽¹⁴⁾



High Yield Secondary Performance ⁽¹⁵⁾



¹¹ Ibid.

¹² Ibid.

¹³ Federal Reserve Bank of New York data, January 2025.

¹⁴ Pitchbook data, January 2025.

¹⁵ Bank of America Merrill Lynch data, January 2025.

¹⁶ Pitchbook report, "2024 Annual US PE First Look," January 2025.

¹⁷ Ibid.

DEBT CAPITAL MARKETS: The Bottom Line for 2024 and Outlook for 2025

- The debt markets showed strength and resilience in 2024 and with record levels of dry powder available to deploy, the market is poised to continue this momentum into 2025.
- Pressure to deploy all this capital for both private credit and syndicated funds will drive increased competition between the two markets into 2025, resulting in a continuation of the current borrower friendly environment.
- With a backdrop of decreasing rates, a thawing M&A environment and continued fundraising for debt focused funds, 2025 is shaping up to be a highly active environment for debt financings of all shapes and sizes.

Private Equity Capital Markets

The private equity markets are starting to become more active after a long stretch of limited deal-making. New deal count in 2024 rose by 12.8% year-over-year and exit count rose by 16.7% in the same period. Both deal count and deal value increased steadily through 2024, until Q4, which was slightly softer for both metrics.

PE Deal Activity By Quarter (2019–Q4'2024) ⁽¹⁶⁾



PE Exit Activity By Quarter (2019–Q4'2024) ⁽¹⁷⁾

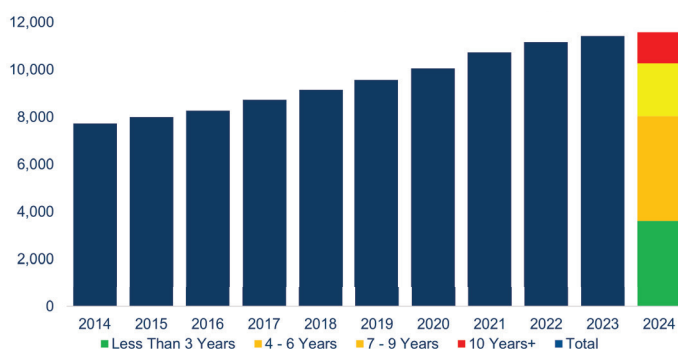


Still, the average hold time for private equity portfolio companies has crept up to over seven years, creating new opportunities in the market as sponsors aggressively seek to generate liquidity. In addition to the aforementioned demand for dividend recapitalizations, many sponsors have been quietly shopping minority transactions in lieu of full processes. A smaller, minority process allows the sponsor to generate liquidity but still avoid the possibility of a public down mark on valuation that would be the result of a full sale process. Generating this liquidity to pass onto LPs is critical for sponsors as they look to their next fundraising activities.

PRIVATE EQUITY CAPITAL MARKETS: The bottom line for 2024 and outlook for 2025

- **A softer M&A environment has required sponsors to seek alternative transaction types in order to generate the liquidity they desperately need to drive future fundraising.**
- **A thawing M&A landscape in combination with highly constructive credit markets should allow sponsors to spend 2025 clearing the backlog of long in the tooth deals they have accumulated.**
- **In addition to the dry powder creating constructive debt markets, continued fundraising and dry powder in sponsors' coffers will help to break the M&A logjam of the past three years.**

PE-backed Company Inventory By Deal Year (2014–2024) ⁽¹⁸⁾



¹⁸ *Ibid.*



Anderson Wasden
Director, Capital Markets

SECONDARIES MARKET

Building Momentum in a Stabilizing Market

The secondaries market continues to play a pivotal role in private equity and venture ecosystems. After a year of stabilization in 2024, the market enters 2025 with a strong foundation for growth. Buyers are increasingly focusing on quality assets, fundraising remains robust, and innovative deal structures – particularly in GP-led transactions – are unlocking new avenues for liquidity and investment.

KEY THEMES FOR 2025

- **Pricing Stabilization:** Pricing for late-stage and growth funds is holding steady, with narrowing discounts on GP-led deals, particularly in the technology sector.
- **Expanding Deal Volume:** Transaction volumes are projected to grow, with GP-led deals continuing to dominate the market.
- **Robust Fundraising:** Record fundraising levels in 2024 have set the stage for significant capital deployment in 2025, particularly in tech-heavy secondaries.
- **Emerging Buyer Selectivity:** Buyers are prioritizing high-quality assets with clear exit pathways, driven by abundant deal flow and increased focus on risk-adjusted returns.
- **Innovation in GP-Led Structures:** Single-asset continuation vehicles (CVs) are at the forefront of GP-led activity, offering GPs long-term control of high-performing assets while addressing liquidity needs for LPs.

Market Dynamics

Pricing Trends – Pricing has stabilized across the secondary market. Late-stage venture and growth equity funds are trading at 65-85% of NAV, supported by rebounding technology valuations and increased IPO activity. Discounts for venture fund portfolios average 32%, with a handful of marquee startups like Databricks, Anthropic and SpaceX actually commanding premiums due to their market-leading positions and growth potential. LP-led deals show narrowing discounts (4-9%) as buyer confidence improves, while GP-led pricing converges, reflecting the maturity of these structures. The prominence of single-asset continuation funds reflects their ability to concentrate resources on assets with strong growth trajectories, attracting both GPs and buyers.¹

Transaction Volume – Secondary transaction volume rose to ~\$150B in 2024, up from \$110B in 2023, with growth expected to accelerate in 2025. GP-led deals now account for ~50% of the market. Continuation funds represented the most common GP-led transaction structure, comprising 79% of total volume in 2024. Single-asset continuation funds have regained prominence, accounting for approximately 48% of total volume.²

Macroeconomic and Fundraising Drivers

Macroeconomic Tailwinds – Stable interest rates and improved economic conditions are boosting confidence in the secondaries market.

M&A Activity: A recovery in syndicated loans and the growth of private credit support increased M&A activity, which creates opportunities for secondary investors by generating liquidity events and enabling portfolio rebalancing.

IPO Resurgence: Renewed IPO activity provides a clear exit pathway for select venture-backed companies, increasing the appeal of secondary investments by offering buyers better visibility into potential returns.

Record Fundraising – The market continues to see robust capital formation, with record fundraising in 2024. Ardian raised \$30B for private equity secondaries, while StepStone Group closed \$3.3B and \$7.4B for venture and private equity funds, respectively. G Squared and LGT Capital Partners also achieved significant raises, emphasizing liquidity solutions and opportunities in tech-focused portfolios.

Tech Sector-Specific Insights

Technology-focused GPs are leading innovation in the secondary market. Single-asset transactions dominate GP-led activity, reflecting a strategic focus on scalable,

high-growth companies. Notable deals include Vista Equity's investment in Cloud Software Group and Rubicon Technology Partners' continuation vehicle for Cin7. Marquee names in AI and enterprise software command premium pricing, while discounts for broader venture portfolios persist, averaging 32% below NAV.³

Opportunities and Challenges in the Secondary Market for the Coming Year

➕ **Growing Deal Volume** – Transaction volumes are expected to continue rising, driven by increasing demand for high-quality, middle market assets.

➕ **Improving Macroeconomics** – A stable interest rate environment is fostering confidence, reducing uncertainty, narrowing bid-ask spreads, and encouraging a more favorable transaction landscape.

➕ **New Capital Sources** – The participation of specialist investors and the entrance of open-ended funds are expanding liquidity and driving competition, particularly for marquee assets.

➖ **Market Volatility** – Persistent geopolitical uncertainty and still-elevated interest rates increase deal complexity, constrain access to financing and dampen investor appetite.

➖ **Valuation Gaps** – Seller expectations continue to outpace those of buyers, widening bid-ask spreads.

Conclusion

The secondaries market is set for a strong 2025, underpinned by robust fundraising, macroeconomic stability and innovation in GP-led structures. Technology-focused assets and venture secondaries will continue to drive activity, with buyers prioritizing quality and growth potential.

At Union Square Advisors, we leverage deep expertise in technology and complex transaction structuring to help our clients navigate this dynamic market. We welcome the opportunity to discuss these trends and opportunities with you.



Todd Meadow
Managing Director, Capital Markets,
Head of GP Solutions & Sponsor
Coverage

¹ *WSJ Pro Private Equity, "Special Report on the Secondary Market," August 2024.*

² *Lazard, "2024 Secondary Market Report," January 2025.*

³ *WSJ Pro Private Equity, "Special Report on the Secondary Market," August 2024.*

Sector Coverage

FRONT OFFICE SOFTWARE

Significant Disruption from the Unleashing of AI, But Where Do We Go From Here?

The front office software categories – sales, marketing and customer service & support – have seen significant disruption over the last year. Massive tech forces, including the accelerated adoption of AI, are changing the competitive landscape, while budget constraints in certain end-markets are altering customer buying patterns. These dynamics have combined to produce a profound impact on associated M&A and financing activity. However, while 2024 transaction volumes remained muted, we expect to see an increase in both consolidation and financings as we head into 2025.

SalesTech – AI, Automation & Sales Enablement

In the sales software sector, capabilities that leverage AI and automation are helping users capture more revenue, and in more efficient ways, thereby driving tangible ROI. AI and automation are revolutionizing how businesses generate leads, manage sales pipelines and forecast revenue. AI-powered tools enable sales teams to analyze vast amounts of customer and prospect data to identify high-quality leads, predict sales outcomes and personalize engagement. Tools can leverage AI to suggest the best time and communication channel for contacting a lead, tailor messaging based on previous interactions, and even automate routine tasks. New AI



capabilities also are boosting sales agent productivity – or even fully replacing them via autonomous, always-on SDRs. These advancements not only improve efficiency but also enhance the accuracy of sales forecasts, providing businesses with a more reliable view of their revenue potential.

Another prominent trend is the rise of revenue intelligence platforms that analyze sales data to surface insights to help drive more revenue. These solutions leverage a central data infrastructure to enable a seamless flow of information between all customer-facing functions. This allows sales teams to have a complete 360-degree view of customer interactions, facilitating more personalized outreach and arming sales teams with the right content, insights and analytics to

close deals more effectively. This data-centric approach can also improve the accuracy of revenue forecasts, increase the effectiveness of coaching, refine strategic planning and strengthen the overall GTM function.

Salesforce's acquisition of Zoomin highlights the importance of AI-powered sales capabilities and the need for data management to make tools like Salesforce Agentforce effective. Five9's recent acquisition of Acqueon also highlights the value of AI- and data-driven prospect engagement. We expect to see deal velocity increase in 2025, and the most strategic acquisitions and investments will be with companies that are leading the development of next-generation AI, automation and revenue intelligence. Private companies we are watching in this space include Demandbase, Mediafly and ChurnZero.

MarTech – Data, Personalization & Omnichannel Engagement

Data continues to be central to modern digital marketing. The rise of big data and analytical tools allows businesses to gain much deeper insights into customer demographics, behavior and preferences. With the help of advanced analytics platforms, marketers can segment their audiences more effectively, craft personalized marketing campaigns and measure the impact of their efforts in real-time. Marketing software is evolving to include features that enable more granular targeting and dynamic campaign adjustments based on these data-driven insights.

Personalization also continues to enjoy a critical focus. Modern marketing platforms allow businesses to deliver hyper-personalized and targeted content to customers based on their individual behaviors, preferences and past interactions. Whether it's personalized emails, targeted ads or tailored product recommendations, marketers are increasingly using tools to create custom experiences that resonate with consumers on a truly 1-1 basis. This trend is part of a broader movement toward enhancing overall customer experience, with businesses prioritizing not just customer acquisition but also long-term loyalty.

Another disruptive force in martech is the continued shift to omnichannel marketing. As consumers interact with brands across a wide range of channels – including email, social media, websites and mobile apps – the need for integrated marketing solutions has grown exponentially. Omnichannel marketing platforms allow businesses to manage campaigns across multiple touchpoints, ensuring that customers receive a consistent message no matter how they engage with

the brand. These platforms also provide marketers with valuable insights across the customer journey, allowing for more effective attribution of marketing spend and improved ROI.

Xext's recent acquisition of Hearsay Systems is an example of consolidation driven by the desire to combine digital marketing channels into a single platform to increase efficiency, improve performance and reduce costs. We expect to see this theme as central to even more M&A activity in 2025. Private companies helping drive these disruptive industry trends include OneSignal, Cordial and Triple Whale.



Contact Center & Customer Support Software – AI Agents & Omnichannel Support

The contact center software market is also undergoing a major transformation, driven largely by the adoption of chatbots and generative AI capabilities. Businesses are leveraging AI-driven chatbots to handle routine customer inquiries, significantly reducing wait times and improving efficiencies. These virtual assistants are able to resolve simple issues autonomously while escalating more complex problems to human agents. AI tools also are being used to analyze customer sentiment, understand intent, predict customer needs and optimize the allocation of resources within contact centers.

Another key trend is the growing demand for omnichannel support. Customers today expect seamless communication across multiple channels, including voice, chat, email and social media. Modern contact center solutions enable businesses to

manage customer interactions across these various channels from a single interface, ensuring a consistent and seamless customer experience. This shift is particularly important as consumers increasingly prefer digital messaging and chat services over traditional phone calls, creating the need for contact centers to adapt to new modes of communication.

Cloud-based contact centers continue to gain market share away from legacy platforms. Cloud solutions offer businesses significantly greater flexibility, scalability and cost-efficiency compared to traditional on-premises systems. Companies can scale their operations quickly, support remote or hybrid work environments, and take advantage of advanced analytics and AI-powered tools to improve customer service. Additionally, cloud-based solutions often come with lower upfront costs, making them more accessible to small and medium-sized businesses.

AI, in particular, has been a driving force behind customer service software M&A in 2024. Verint's acquisition of Cogito, whose tools enable real-time AI coaching and guidance for contact center agents, is a prime example. We expect this trend to accelerate in 2025. Leading private contact center companies we continue to watch include Intradiem, Balto and Bright Pattern.

AI AND INFRASTRUCTURE SOFTWARE

GenAI Enterprise Production Deployments Will Drive Substantial Growth

By any measure, the infrastructure software sector is broad, and at its core is data – the precious corporate asset that needs to be stored, moved, managed, accessed, secured and, most importantly, understood. The past two decades have witnessed revolutionary advancements in how the power of data can be leveraged – from the emergence of campus LANs to broadband networks to data federation to cloud computing to AI-driven automation and insights.

Conclusion

The sales, marketing, and contact center software markets are experiencing continued disruption driven by technology advancements, changing budget strategies and shifting customer expectations. The “do more with less” mantra remains – software purchasers are looking for capabilities that can drive more revenue, improve customer experiences and decrease overall spend. To meet those demands, software vendors are leveraging recent tech advancements – including AI, automation and omnichannel capabilities. These front office software businesses remain prime targets for the larger strategic acquirors and sponsors building platforms that span the entire customer journey, or for investors looking to back the next wave of category leaders.



Will Andereck
Partner, Front Office Software

2025: The Year of (Gen) AI

In 2024, artificial intelligence took center stage from an enterprise perspective. The number of AI models put into production increased 11x⁽¹⁾ during the year, with natural language processing (NLP) as the top application for machine learning. Meanwhile, experimentation into how best to leverage the power of GenAI flourished, as virtually all aspects of enterprise operations were scrutinized and tested for their potential to take advantage of AI-driven automation. As a result, experts initially believed that 2024 would be the year that GenAI went mainstream in the enterprise; however, real production deployments still faced meaningful headwinds, and the gap between GenAI hype and real productivity gains remained stubbornly wide.

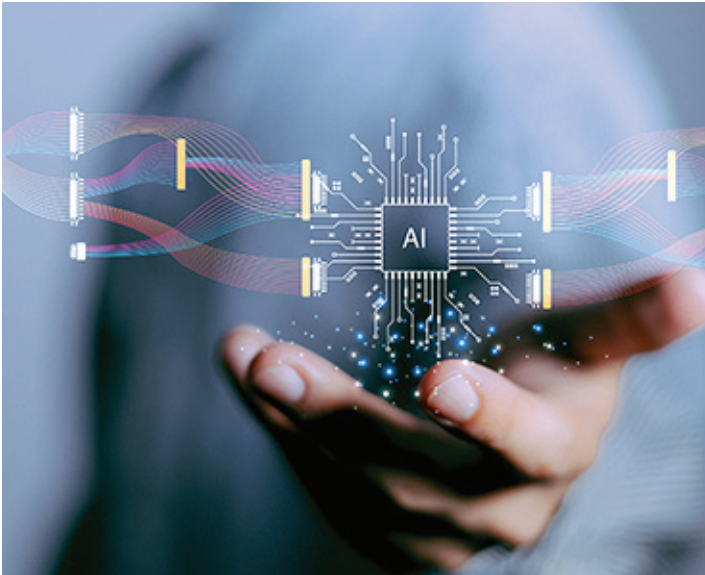
Looking ahead to 2025, these headwinds have been reduced significantly by the maturation of key enabling technologies, including the unlocking of unstructured data, the emergence of AI agents and vertical specific AI solutions, and the availability of GenAI security solutions. Will 2025 be the year of real production GenAI

¹ Databricks, “State of Data & AI: Data Intelligence and the Race to Customize LLMs,” 2024.

deployments in the enterprise? Early indications are that it could very well be, and we believe that this will have a meaningful impact on the valuations and exit potential across the entire infrastructure software sector.

I Want My... Unstructured Data

It is estimated that over 80-90%⁽²⁾ of enterprise data is unstructured, including call transcripts, social media posts, internal team messaging, and technical diagrams and data in PDF documents. Previously, enterprise customers had to be selective in terms of which unstructured data elements were valuable enough to justify the cost and time for the development of custom parsers or human-in-the-loop annotators to help incorporate these data into enterprise AI decisioning and automation.



However, the past few years have seen groundbreaking technologies come to market that are now enabling enterprises to cost-effectively leverage nearly all their unstructured data. Some examples of companies with unique solutions in this space are Mathpix, with its highly accurate and efficient document AI technology for scientific documents; datasaur.ai, with its powerful NLP-based labeling solution; and unstructured.io, a leading platform to empower developers to make enterprise unstructured data LLM-ready.

There's An Agent for That

Revolutionary technologies are often first released as consumer products and, only after they have achieved the required levels of reliability, accuracy and security, are they able to move into production deployments in the enterprise. Two examples of this are cloud storage (Dropbox, Box) and collaboration solutions (Slack, Zoom), each of which had consumer applications as their roots.

GenAI/LLMs are no different. In 2025, key enabling technologies like retrieval augmentation generation (RAG), as well as the ability for the easy development of AI agents to act autonomously, will take center stage. Vectara is a great example of a startup that is helping companies rapidly create powerful RAG applications via its RAG-as-a-Service platform. In addition, vector databases are a key enabler to provide the performance, efficiency and cost savings required for RAG applications. Weviate is one startup in the vector database space that is gaining significant traction as large enterprise customers seek to deploy RAG applications. Finally, causalens, a pioneer in the causal AI space, has geared its product to focus squarely on helping enterprises easily build AI agents that provide insights into what levers managers can use to yield positive productivity outcomes for their teams.

The Vertical AI Revolution: One Size No Longer Fits All

Enterprises are always looking for innovative technologies to help them automate highly repetitive processes, such as order entry, medical claims processing and help desk ticket resolution. This need has driven the Robotic Processing Automation (RPA) industry to reach \$8B in 2024.⁽³⁾ One drawback of traditional 'robot'-based RPA is that the decisioning elements need to be established in advance. Enterprise customers are now looking to leverage the power of GenAI to embed reasoning into their automated agents, thus enabling aspects of decision-making to be assessed and confirmed in real time. However, one of the biggest challenges with this approach is the need for AI agents to fully understand the nuances of the specific industry and business in which they are operating.

Vertical AI solutions are addressing this challenge head on. One example of a vertical AI startup is Indico Data, which focuses squarely on AI for the insurance market. The company has a leading platform for fully understanding all data in insurance documents that enables intelligent automation. Similarly, Hippocratic AI has built a healthcare foundational model that powers its AI-based patient engagement specialist bots. These AI specialists greatly reduce the costs of chronic care management while increasing patient care adherence and satisfaction. And Central has built an innovative AI-driven platform for optimizing the performance management lifecycle for call center agents and sales reps.

² GeekWire, "Why Unstructured Data Is Your Organization's Best-Kept Secret," 2021.

³ The Business Research Company, "Global Robotic Process Automation (RPA) Market Forecast 2024-2033," 2024.

AI Security Grows in Importance

Keeping corporate networks and data secure will become an even more critical area of importance as previously untapped unstructured data elements are brought into AI deployments. Furthermore, the need to extend corporate data governance and compliance to cover unstructured data, as well as the need to protect AI agents that will be provided ever-increasing levels of autonomy, will become a top priority for enterprise IT. Some companies that are helping solve these challenges are Privacera (data governance), Strider (data risk management), and WhyLabs (AI model observability and LLM protection).

AI Company Valuations Soar, but so do Expectations

Valuations of AI startups, and especially GenAI startups, led all software sectors in 2024. This trend is expected to continue into 2025, but with a few caveats. As the GenAI market moves from experimentation to real production deployments, valuations will become more tied to standard SaaS metrics. There will of course always be outliers for startups that have built truly groundbreaking products; however, the majority of companies in this space will have their valuations tied to core business

metrics such as revenue growth, customer retention (NRR), infrastructure scalability and unit economics, and vertical market expertise.

Finally, we anticipate the appetite for acquisition of AI companies by both strategics and sponsors will grow in 2025, as the technology becomes more mainstream and every large software solutions provider needs to have a solid offering to stay competitive. We believe that this should lead to acquisition prices remaining healthy, even for leading targets that may not yet have achieved traditional SaaS business metrics.



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RETAIL AND E-COMMERCE TECHNOLOGY

Retail Renaissance: Navigating the Complexity of Tomorrow's E-Commerce Landscape

The U.S. e-commerce market remains large at over \$1.2T in 2024, and it is projected to grow to \$1.7T by 2028, a CAGR of 9%.⁽¹⁾ Despite its significant scale, e-commerce currently accounts for only 16% of overall U.S. retail sales, leaving ample room for expansion – a steady trend that has continued over decades. Continued investments in technology by both corporations and consumers are fueling this growth, and the ongoing AI revolution promises to accelerate its trajectory, building on the foundations of mobile-first, cloud-enabled and digitally transformed ecosystems. With AI-powered personalization, headless commerce and cross-channel strategies redefining the

rules across the retail landscape, the question isn't whether change will come – it's how to profit from it.

The Friction-Filled Frontier of Retail Technology

Retail software remains an intricate tapestry of technological complexity, where traditional infrastructure meets emerging innovation. The current landscape is defined by significant friction points that challenge even the most adaptable organizations. Macroeconomic pressures – including inflationary trends, constrained consumer spending and global supply chain recalibrations – are compelling retailers to reimagine their entire technological architectures.

The rise of headless commerce represents a paradigmatic shift in this context. By decoupling front-end presentation layers from backend infrastructure, organizations can achieve unprecedented flexibility. Companies like Shopify, Commercetools, BigCommerce and Fabric, among others, have allowed brands and retailers of all sizes to optimize the digital experience by providing numerous API endpoints and extensive flexibility. This architectural approach allows for rapid experimentation, personalized customer experiences, and accelerated time-to-market for digital initiatives.

¹ EMARKETER, "US Ecommerce Forecast," August 2024.

The Consumer as Architect of the Shopping Journey

Contemporary consumers have transcended passive purchasing behaviors, emerging as active architects of their own retail experiences. The democratization of technology has empowered individuals to curate personalized shopping journeys that align precisely with their preferences, expectations and contextual needs. Personalization is no longer a perk but a prerequisite; brands that fall short of this expectation risk fading into irrelevance.

Artificial intelligence is the crown jewel of this new era. AI-driven tools enable hyper-personalized interactions, from real-time product recommendations to bespoke promotions tailored to an individual's browsing history and preferences. Companies like Nike and Sephora are setting benchmarks with their AI-enabled, high-touch shopping experiences. As AI becomes increasingly sophisticated, we expect more retailers to embrace predictive analytics, voice commerce and virtual assistants to remain competitive. These technologies are not just enhancing customer satisfaction but unlocking lucrative investment opportunities.

In this high-stakes game, one thing is clear: the ecosystem's complexity is both its greatest challenge and its greatest opportunity.

Verticalization and Omnichannel Convergence

The ecosystem is witnessing a fascinating trend toward category-specific verticalization, simultaneously accompanied by robust cross-channel integration. Niche market segments that were historically underserved are now experiencing exponential growth, enabled by sophisticated software solutions tailored to their unique requirements – Next Glass has transformed the global beverage industry by modernizing that sector's complex and nuanced digital workflows, while MarketDial has overhauled the in-store testing process for grocery, convenience and mass retail, allowing for significant uptick in planning visibility and ROI – two very different, yet crystalizing, examples of the vertical orientation required to conquer niche categories in today's retail landscape.

Simultaneously, the importance of cross-channel strategies has skyrocketed. Mobile commerce, social commerce and augmented reality are less optional and



more foundational today. TikTok's success as a shopping platform, and the growing adoption of AR for virtual try-ons, underscore the need for omnipresence and how this cross-channel convergence can create immersive purchasing environments. Virtual try-on experiences powered by sophisticated computer vision algorithms are transforming traditional retail paradigms. Consumers can now virtually test makeup, evaluate furniture placement or assess clothing fit with unprecedented accuracy – all directly from their mobile devices. Companies like True Fit, Redo and Invent Analytics represent cutting-edge technologies that are transforming the online shopping world. In this dynamic environment, the companies that can enable seamless integration across these channels while also providing insights to optimize each touchpoint stand to win big.

Data: The Next Chapter

Retailers today are sitting on massive treasure troves of data, much of it unstructured and virtually all of it underutilized. AI is transforming how these data caches are being harnessed, making previously inscrutable preference and purchasing patterns clear and actionable.

However, the opportunity extends beyond the data itself. Companies that can simplify the integration of disparate data sources, across multiple formats and platforms, will be pivotal. Startups enabling real-time analytics, predictive modeling and customer segmentation tools will continue to attract significant venture and private equity funding. Strong players across the broad spectrum of retail and e-commerce data analytics, like Edited and Singular, allow brands to ingest intelligence in all decision-making activities using unique data sets with sizable moats. For investors, the question isn't whether to bet on data-driven solutions but which layer of the stack to back: infrastructure, tools or end-user applications.

The M&A and Investing Landscape Remains Active

The fragmented nature of today's retail and e-commerce software ecosystem sets the stage for both continued innovation and consolidation. Much like previous periods of technological transformation, the coming year will favor a "winner-takes-all" dynamic. Established players with deep pockets will seek to acquire smaller competitors to solidify their leading positions, particularly in high-growth verticals.

Private equity will play an increasingly outsized role in this narrative. Roll-ups of complementary technologies and funding for later-stage innovators are on the rise, creating opportunities for savvy investors to place big bets. Venture capital and growth equity investors alike will remain active across this sector given the rampant and rapid evolution across the ecosystem.

Forecast for the Year Ahead

The e-commerce and retail software ecosystem is entering an era of profound evolution. As investment in technology continues and consumer expectations soar, the most adaptable players will thrive – and those

who fail to adapt will inevitably be overwhelmed. Opportunities abound in personalization, verticalization, cross-channel innovation and data integration. Both acquirors and investors with a keen eye for unique and scalable solutions will find themselves well-positioned to ride this wave of transformation. In this high-stakes game, one thing is clear: the ecosystem's complexity is both its greatest challenge and its greatest opportunity. For those who navigate it wisely, the rewards will be sizable. Welcome to the retail renaissance – a world where change is constant and the future brims with opportunity.



Emily Anderson
*Managing Director, Retail and
E-Commerce Technology*

GOVERNANCE, RISK AND COMPLIANCE TECHNOLOGY

Major Changes in 2024 – and Even More to Come in 2025

2024 proved to be a year of major transformation and change across the Governance, Risk and Compliance (GRC) software market. Continued geopolitical tensions, constant regulatory change, the democratization of AI, ever expanding digital footprints and heightened consumer focus on corporate social responsibility all have forced risk managers across large and small organizations alike to be more adaptable and proactive than ever before in managing both internal and external threats. As such, organizations of all sizes continue to adopt GRC software solutions at an accelerated pace, resulting in a \$50+B global market today that is expected to continue growing at a ~14% CAGR through 2030.⁽¹⁾

Despite its size and strong growth, the GRC market remains quite fragmented. Key players include a mix of large public and PE-backed platform providers, as well as both independent and VC/PE-backed point solution providers that typically focus on some combination of specific risk vectors and/or verticals. Given these market dynamics, and the increasingly mission-critical nature of the product offerings, we have seen and expect to continue to see healthy financing and M&A activity within the sector.

Continued Shift towards Integrated Risk Management

With the myriad of complex and increasingly interconnected risks that organizations face daily, integrated risk management (IRM) has become critical to better understanding and proactively mitigating those risks comprehensively across the enterprise. Traditional risk management frameworks (e.g. GRC, ESG, cybersecurity, etc.) historically have operated in silos, each only addressing a single or small subset of risk vectors across the organization.

Today, organizations are increasingly turning to IRM platforms that align governance, compliance, operations and technology to gain a holistic view of risk across the enterprise via a single pane of glass. This integrated

¹ Grand View Research, "Enterprise Governance, Risk And Compliance (eGRC) Market Report 2024-2030," 2024.

approach helps organizations shift risk management from a siloed, reactive approach to a proactive, strategic one that helps drive performance and create value. Representative IRM companies to watch include Archer, AuditBoard, Diligent, LogicGate, NAVEX, Riskconnect and SAI360, among numerous others.

Today, organizations are increasingly turning to IRM platforms that align governance, compliance, operations and technology to gain a holistic view of risk across the enterprise via a single pane of glass.

Democratization of AI Brings Wealth of Opportunities but also Potential Risks

Like many sectors within technology and beyond, AI's rapid transformation of the GRC software landscape was a key theme in 2024. AI is being leveraged across multiple risk management use cases to drive meaningful speed and efficiency, accuracy, increased scalability and real-time decision making that enhances the safety and security of the enterprise. These use cases include predictive analytics and risk forecasting, automation of compliance tasks, enhanced cybersecurity, regulatory change management and fraud protection, among many others.

Despite the compelling value proposition, AI also comes with its own set of unique challenges and potential risks, including hallucinations, algorithmic bias, regulatory challenges, data quality and governance requirements, and ethical concerns. Many organizations have taken a more conservative approach to incorporating AI technology into their risk management functions by ensuring that AI oversight is embedded within their broader risk management strategy.

Increasingly Complex and Ever-Changing Regulatory Environment

Navigating the complex and ever-changing regulatory environment has been a constant struggle for organizations globally, and 2024 was no different. With the SEC's new cybersecurity disclosure rules, the emergence of numerous AI-related regulations (e.g., the U.S. AI Bill of Rights, EU AI Act, etc.), and Europe's Digital Operational Resilience Act (DORA) taking effect,

organizations around the world are under immense pressure to remain compliant; otherwise, they face significant negative consequences, including hefty fines, financial losses and reputational damage.

While IRM platforms increasingly are embedding tools and workflows for regulatory horizon scanning, automated compliance updates and effective policy change management, many organizations rely on both best-of-breed platforms and point solutions purpose-built to help them navigate the nuances of the highly regulated vertical within which they operate. The financial services vertical is a perfect example, with numerous RegTech companies focused heavily or exclusively on helping financial services clients navigate various risks like AML / KYC / financial crimes compliance, communications compliance / data governance, ethics and conflicts of interest and regulatory change management, among others. Some interesting companies we are watching in each of these sub-sectors include:

AML / KYC / Financial Crimes Compliance:

Datavisor, Encompass, Feedzai, Fenergo, Hawk.AI, Hummingbird, Ripjar, Sigma360, Sumsu, Vital4, Workfusion

Communications Compliance / Data Governance:

Archive360, Behavox, GlobalRelay, LeapXpert, Mimecast, MirrorWeb, Movius, Pagefreezer, Proofpoint, Red Oak Compliance, Shield, Smarsh, SteelEye, ThetaLake

Ethics / Conflicts of Interest:

Comply, MyComplianceOffice, RegEd, Star Compliance

Regulatory Change Management:

Ascent, Corlytics, Cube

Cybersecurity Challenges Have Become Even More Acute

Cybersecurity risks became even more challenging throughout 2024, with high-profile cyber-attacks on companies like Change Healthcare and CrowdStrike dominating the headlines and underscoring the need for advanced cybersecurity solutions to prevent such attacks. These breaches, among many others, put a spotlight on the critical vulnerabilities across third-party vendors, supply chains and internal systems and controls, further highlighting the acute need for a holistic and proactive risk management strategy. As such, organizations have increasingly focused on integrating cybersecurity into their broader IRM strategies, transitioning from a purely reactive posture to a proactive one through the implementation of real-time monitoring,

enhanced threat detection, and streamlined incident response and case management processes.

Supply Chain and Third-Party Vendor Risk Have Become Mission-Critical

Similar to cybersecurity, Third-Party Risk Management (TPRM) and Supply Chain Risk Management (SCRM) became core focus areas for organizations of all sizes in 2024. Specifically, the importance of mitigating risks across the full value chain of third parties – i.e., an enterprise’s understanding of not only its direct suppliers, but their suppliers as well, in order to mitigate any single points of failure – became much more pronounced.

As such, organizations increasingly turned to software to more fully integrate TPRM / SCRM into their broader enterprise risk management strategies, adopting solutions that conduct real-time risk assessments of third-parties, continuously monitoring and evaluating their cybersecurity readiness, and integrating vendor performance metrics into enterprise-wide dashboards. This integrated approach has enabled tech-forward organizations to either entirely prevent or quickly respond to vendor-related disruptions, whether they be from cybersecurity breaches, compliance gaps, supply chain issues or geopolitical instability. Some interesting companies to watch in the TPRM / SCRM / Threat Intelligence arena include Aravo, BlackKite, Censinet, Certa, Exiger, Kharon, NContracts, ProcessUnity, Resilinc, Sayari, Strider, UpGuard, and Whistic, among numerous others.

Corporate Focus Expanding from Core EHS Risk Strategies to Broader ESG Focused Initiatives

Throughout 2024, Environmental, Social & Governance (ESG) initiatives became a critical component of organizations’ IRM strategies, which typically expanded beyond the core Environmental, Health & Safety (EHS) approaches that many already had in place. This shift in posture was driven by new requirements and legislation, including the SEC’s adoption of climate-related disclosure rules and the EU’s Corporate Sustainability Reporting Directive (CSRD), as well as rising expectations on the part of regulators, investors, consumers, and other stakeholders.

As a result, ESG-focused initiatives that once were siloed have become more fully integrated into a broader, more holistic risk management approach, with software that now integrates external data sources and internal systems to streamline ESG reporting and improve transparency. This type of approach enables organizations to identify and manage risks associated with climate change, supply chain vulnerabilities and constantly changing regulatory requirements. We should note there

is some concern about near-term demand for certain ESG-related solutions, given a new U.S. presidential administration, the potential push towards deregulation, and the possible impact of overturning the Chevron doctrine. However, our belief is that, over the long-term, ESG-focused initiatives are here to stay. Representative interesting companies in this space include 3E, BLR, Cority, Ecovadis, Enhesa, Greenly, Ideagen, KPA, Novata, Novisto, Persefoni, Prophix, Source Intelligence, Sphera, VelocityEHS, Workiva, among numerous others.

Conclusion

The GRC software market is poised for continued strong growth, underscored by complex and ever-changing regulatory demands, technological advancements, geopolitical shifts, and heightened risk awareness. As such, we expect to continue to see strong investment and M&A activity in the this space in 2025 and beyond, as both financial sponsors and strategics look for new opportunities to capitalize on these strong secular tailwinds.



Chris Appaneal
*Managing Director, Governance,
Risk and Compliance Technology*

Full of Activity and Opportunity for Founders, Investors, Companies and Consolidators

Vertical Software Represents a Large and Growing Component of the Software Universe

Over the past couple of decades, we have seen the rise of companies building highly tailored software solutions designed to meet the unique user requirements for a specific industry or functional area. These vertical software companies forged a path different than horizontal software players, choosing specialization in a single industry or vertical over ubiquity across multiple industries. Supported by the accessibility of cloud computing and the emergence of SaaS business models, vertical software companies such as AppFolio, Procore, ServiceTitan, Toast and Veeva have emerged and rapidly scaled into large public companies.

Today approximately 30% of the public software universe is made up of what Union Square Advisors classifies as vertical software companies, representing more than \$800B in market capitalization.¹ However, the number of, and the value associated with, private vertical software companies globally is exponentially larger. The ranks of these vertical software companies continue to grow as specialization proliferates, driven by growth in the underlying industries they address and by entrepreneurs identifying new emerging verticals to serve. More than ever before, we expect 2025 to continue to showcase the unique value and opportunities being driven by vertical software players.

Key Vertical Software Sectors to Watch

We track nearly two dozen key vertical software sectors, including automotive; beauty & wellness; construction; education; energy & utilities; field & home services; financial services; government & public sector; gym & fitness; healthcare; industrial & manufacturing; insurance; legal; non-profits & associations; real estate; restaurant & retail; governance, risk & compliance; supply chain & logistics; and travel & hospitality. Our team's insights into some of these sectors are detailed in various parts

of this Outlook Report, though, unfortunately, space limitations prevent us from doing a deep dive here on all of them. However, we believe a number of these key vertical software sectors are ripe for significant strategic and investment activity in 2025, including gym & fitness, HealthTech, industrial, insurance, legal and supply chain & logistics.

Vertical Software Predictions for 2025

As we enter 2025, we have formulated the following predictions for vertical software:

1 *Prediction: Vertical software will be the most active area of software consolidation for the foreseeable future*

Earlier-stage software companies focusing on a particular vertical or sub-vertical market typically can build either (i) differentiated, niche capabilities that solve a small problem across the entire end-market, or (ii) a broader platform that focuses on the specific needs of a narrower customer segment within that market. Eventually, each company type approaches a growth plateau that leads to its being acquired by a larger company having broader capabilities and/or a bigger customer base, or it catches the attention of savvy investors looking to help fund the business to build or acquire those additional capabilities and grow its customer base. This results in consistent vertical software consolidation.

2 *Prediction: Vertical software companies will continue to trade at premium valuations relative to horizontal application software companies*

Vertical software companies consistently command higher valuations compared to their horizontal counterparts. There are multiple reasons for this, including higher retention metrics given the stickiness and mission-criticality of the software; higher comparable free cash flow margin profiles, driven by focused sales and marketing spend, plus the potential (in some verticals) to incorporate additional FinTech offerings to augment core subscription revenues; and the limited threat of large, horizontal software companies deploying the necessary resources to provide comparably specialized solutions for a given vertical.

3 *Prediction: The allocation mix to vertical software in traditional private equity portfolios will continue to increase*

Some of 2024's largest PE software transactions were vertical software acquisitions, e.g., Bain Capital / PowerSchool, KKR / Instructure and TPG / Aareon.

¹ S&P Capital IQ data as of December 31, 2024.

There also were many sub-\$1B vertical software companies acquired by PE firms last year. One reason for PE firms to allocate more capital to vertical software is the relative ease of finding tuck-in M&A targets at reasonable prices for vertical software companies when compared to high-growth infrastructure, data and AI assets. The arbitrage of buying tuck-in assets at lower multiples enables PE firms to buy down from their initial platform acquisition multiples over time.

4 Prediction: Non-software companies, particularly those that are leaders and forward-thinkers in their industries, will continue to seek out vertical software acquisitions

A good example of this is with diversified industrial players. In 2024, Siemens, one of the world's largest industrial companies, announced its acquisition of engineering software company Altair to strengthen its position in the industrial software market. In an increasingly connected world, software is needed to differentiate products and solutions, and therefore to continue to win and retain customers and grow market share.

5 Prediction: Vertical software is poised to be a significant net beneficiary of the AI mega-trend

We believe AI is poised to meaningfully accelerate the importance of vertical software companies, and to help them accomplish key objectives – including catalyzing the development of new products that can significantly increase their ACVs, and driving margin improvements for their customers by providing mechanisms to reduce labor and services costs. However, as is the case across the broad software landscape, the impact of integrating AI into vertical software solutions has yet to be fully realized. Nevertheless, we are believers that 2025 will showcase more of this positive evolution, leading to even greater opportunities for investment and strategic consolidation.

Caveats and Concluding Thoughts

Although vertical software is well positioned for strong growth in 2025 and beyond, we also would like to share some caveats on the space. First, the pipeline of vertical software IPOs will continue to build, but not every vertical software company of scale can (or should) go public. There are now fewer than twenty software IPOs each year, and public investors are very choosy about what they want to own. The bar to become a public company has gotten meaningfully higher, offset by greater availability of flexible, private capital at attractive valuations – meaning companies can stay private for much longer

than in the past. We do believe that we will see more vertical software IPOs in 2025 than in 2024 but, of the several dozens of vertical software companies that have achieved unicorn status, not all (many) are likely to have the opportunity to go public.

Second, numerous vertical software companies recorded high valuations in the 2019–2022 time frame, only to have growth slow and available cash dwindle, such that they now are underwater relative to their last valuations. Many have adopted a slower growth + profitability approach to survive and conserve cash, playing the long game in waiting for markets and valuations to improve. However, we view the better path from here in many of these situations to be a proactive approach of driving consolidation with a competitor to achieve the scale and profitability required to attract new investors or acquirors. Owning a smaller stake in a combined, larger company with better prospects vs. a larger stake in a challenged company is often underrated by founders and investors, but investors taking this proactive approach will enable their vertical software portfolio companies to better achieve a more attractive outcome.

Third, not all vertical software companies can innovate their way to victory. Even if a company has built a disruptive, next-generation vertical software platform, it still may be difficult to convince the customers of the largest incumbent in that vertical to pay the inherent switching costs to deploy the new platform – no matter how unique or powerful it is. Market-leading vertical SaaS companies are becoming harder to disrupt due to their focus on consolidating the entire value-chain into their suite of solutions, making switching even more difficult.

Despite these caveats, we stand by our assertion above that vertical software will be one of the most attractive – and active – areas of the entire software ecosystem during the coming year. With so many vertical software companies out there, the opportunity to deploy capital to pursue consolidation is increasingly ripe. Many verticals have a lead player working to consolidate software vendors within that vertical, and there is plenty of room for additional consolidators. Expect to see more entrepreneurs (with the help of investors) and existing vertical software companies pursuing a consolidation strategy.



Terry Jackson
Managing Director, Vertical Software and Payments Technology

In Vogue with Private Equity, Now Optimizing the Risk/Reward Model

The trend is clear: private equity players increasingly are shifting their focus from traditional healthcare services to pharma technology & services, and that trend is showing no signs of slowing. Significant capital is being redirected toward companies that are building tools that enhance clinical development, power supply chains and ensure patient compliance. Our ongoing conversations with private equity leaders indicate a conscious and strong desire to move away from traditional investment areas (such as provider practice management services and associated technology) and into pharma-focused solutions.

Nevertheless, despite the sector's overall growth, deal activity has slowed. The reasons are multifaceted: the Inflation Reduction Act's price caps on certain drugs, an overall decline in clinical trial starts (and a concurrent increase in trial delays and cancellations), budget cuts at major pharma companies (Pfizer, et.al.), clinical research organization (CRO) bellwethers (e.g., Charles River) missing quarterly expectations in 3Q24, and uncertainties around the recent Presidential election outcome all contributed to a challenging landscape in 2024.

In addition to these factors, the funding environment for clinical programs remains challenging. As company confidence in accessing the capital markets has waned, early-stage and pre-clinical programs and biotech solution providers have become harder to finance while the likely strategic partners for these programs have been on the sidelines. With reduced funding available for pharma R&D and go-to-market programs, tech and services vendors supporting these players can no longer simply expect easy adoption and rapid growth – fewer studies lead to fewer opportunities, which means lower spend on supporting infrastructure. While pharma tech and services M&A has still been happening, deals are taking longer to complete and require careful risk assessment and conviction in the underlying spend. Despite this, the pharma tech & services sector saw a rebound in deal volume in 2024, up from the previous year but still far from the peak in 3Q22.



So where does that put us as we now move forward into 2025?

We expect the recent rebound in deal activity to continue into 2025, driven by investors' highly effective pricing of risk. With capital continuing to flow into pharma tech and services, the focus now is on balancing growth potential with risk management in an uncertain market. Investment success will depend on striking that balance – the long-term outlook remains strong, with improving fundamentals in the medium term, making 2025 an ideal year for buyers and investors to confidently invest with a five-year horizon.

Biotech activity trending up and accelerating: According to Wall Street research, biotech follow-on equity issuance in 2024 was up 64% vs. 2023, while private markets also showed signs of life with 50+ companies announcing \$100M+ equity financing rounds.¹ Combining this with the expected return of M&A (77% of biopharma executives surveyed by Deloitte are expecting M&A to increase in 2025)⁽²⁾ may result in the return of a highly active, even 2021-like, transaction pace that we believe could continue throughout 2025 and beyond. Additionally, optimism is growing for a 2025 IPO market rebound, based on significant pent-up demand, improved overall market conditions and the potential for additional interest rate cuts.

R&D spending re-accelerating: While overall pharma R&D spend was relatively flat in 2024 (~\$306B vs. ~\$301B in 2023), its growth rate is expected to double

¹ BioSpace, "Opinion: A Cautiously Sunny Outlook for Biopharma in 2025," January 2025.

² Deloitte Insights, "2025 Life Sciences Outlook," December 2024.

in 2025 (~4% growth),³ partly buoyed by a recovery in the broader funding environment.

Study Startups are Beginning to Show Some Signs of Life: We saw Study Startups begin to tick up through 2H24, with September seeing a 30% YoY increase alone, building upon similar trends observed in August, boding well for drug pipelines in 2025. Large players such as Advarra expected 2% growth in study start-ups through 2027.⁽⁴⁾

Based on current industry dynamics, we view these areas as attractive for investment:

Technology Managing Procurement, Spend, Vendor Relationships and Supply Chain

WHY? Regardless of a strong or weak market, the overall industry will continue to look for ways to be more efficient, reduce costs and increase return on development programs; baseline spend is meaningful and consistent for platforms.

AI applications: Guided buying, 3-way matching, competitive and market intelligence, intelligence, demand forecasting / risk management, and supplier sourcing & management.

Recent deals: Arlington Capital Partners' acquisition of Exostar, Science Exchange's acquisition by Waud Capital Partners, Primus Capital's investment in Prendio-BioProcure, Newvale Capital's investment into Aizon

Companies to watch: Scientist.com, Quartz, Slope Clinical, eMolecules, Stragikon Pharma, Prendio-BioProcure, Aizon, Science Exchange, Transvoyant

Financial Technology, Payments, Compliance and Safety

WHY? Again, it's all about efficiencies, efficiencies – significant gains are to be had in reducing or redeploying financial personnel. And payments are the lifeblood of any enterprise, so improving payment effectiveness offers tremendous long-term benefits. In addition, with growing complexity of molecules and global footprint of trials (and their supply chains), development, safety monitoring and manufacturing execution is paramount.

AI applications: Payment automation, program and budget forecasting, internal resource reallocation, and manufacturing + commercial compliance automation

Examples: Blue Star Innovation Partners' investment in Ledger Run, Auxilius Series A led by SignalFire, Vista Equity Partners' acquisition of Model N

Companies to watch: Auxilius, Medispense, Tailormed, Redica Systems, Qualio, Title21 Health Solutions, Ledger Run, Sorcero

AI Infrastructure, Insights & Niche, Focused Clinical Trial Execution Solutions

WHY? Oncology, neurology and immunology drugs have surged to 49% of new launches since 2018,⁽⁵⁾ driving the need for specialized services and technologies that are fit for the specificity of trial and patient dynamics. The US GLP-1 market is another massive (\$200B)⁽⁶⁾ opportunity that will continue to see more early-stage trials, and one that requires multi-modality monitoring capabilities. Separately, "one-stop shop" platforms serving broad therapeutic areas and study stages are seeing tough competitive dynamics and slower growth. There also is a transition taking place from subjective endpoints to non-subjective digital endpoints leveraging AI infrastructure and models.

AI applications: Automated patient and study progress / clinical reports, multi-modal data ingestion & standardization, patient engagement and recruitment, digital twins, subjective and non-subjective biomarker collection, site optimization and real-world evidence collection.

Examples: Korio Series A led by BIP Ventures, Suvoda's merger with Greenphire, Build Clinical's Acquisition by OpenClinica, Actigraph acquisition of Biofourmis' clinical trial assets, Science.io acquisition by Veradigm

Companies to watch: Datacubed Health, Omniscience, OpenClinica, Actigraph, Mendel.ai, Clinical Ink

Digitally-focused Lab / R&D

WHY? Increasing pressure on scientists to accelerate discovery, collect more data, move studies more quickly into clinical trials, and manufacture efficiently. Biopharma is focused on shortening time to discovery and, therefore, trial timetables, to combat the high 90%+ failure rate of new drug candidates⁷ and improve pipeline ROI.

³ Statista, "Worldwide Pharmaceutical R&D Spending 2014-2030," November 2024.

⁴ BioSpace, "Opinion: A Cautiously Sunny Outlook for Biopharma in 2025," January 2025.

⁵ Deloitte Insights, "2025 Life Sciences Outlook," December 2024.

⁶ Ibid.

AI applications: Predictive modeling and simulation, biomarker discovery and validation, multi-modal data integration, target identification, academic literature review

Examples: LabGuru's acquisition by Battery Ventures' Titian Software, Benchling's acquisition of PipeBio, Archimed's acquisition of Instem, Recursion Pharmaceuticals / Exscientia merger, Certara's acquisition of Chemaxon

Companies to watch: L7 Informatics, Benchsci, Collaborative Drug Discovery (CDD Vault), Instem, Sapio Sciences, Ovation.io, Nucleai, Dotmatics

Looking Ahead

As a leading indicator of private market activity, pharma-facing technology businesses in the public markets generally are trading at a multiple premium relative to their provider-and payer-facing counterparts,

reflecting the continued positive market sentiment towards pharma technology as we move into 2025. While the long-term outlook for these companies (both public and private) consistently has remained upbeat, we are starting to see fundamentals supporting a stronger near and medium-term as well – a trend that will allow buyers and investors alike to lean into improving company growth forecasts, resulting in more activity in 2025.



Alexander Despo
Director, Pharmaceutical, Life Sciences and HealthTech

⁷ National Institutes of Health and University of Michigan study, "Why 90% of clinical drug development fails and how to improve it," February 2022.

HEALTH AND VALUE-BASED CARE TECHNOLOGY

Key Analytic Capabilities Shaping Value-Based Care

Value-Based Care (VBC) is redefining healthcare delivery by emphasizing and dramatically improving quality of care, cost efficiencies and overall patient outcomes. A cornerstone of this transformation is the integration of advanced analytic capabilities into mission-critical healthcare platforms, enabling healthcare providers and payers to leverage data much more effectively in managing patient populations and optimizing care delivery. These analytical tools not only address immediate operational needs for providers and payers, but they also present substantial market opportunities for these organizations in their efforts to expand market share in a highly competitive environment.

The Role of Analytic Capabilities in VBC

At the heart of VBC is the ability to harness data effectively, making advanced analytics a driving force for innovation and market differentiation. Predictive analytics, for example, allow healthcare providers to



anticipate patient needs, allocate resources strategically, and reduce preventable events. This capability is particularly crucial for high-risk populations, such as those with chronic conditions, where early interventions can significantly improve outcomes while also lowering costs. Organizations specializing in predictive modeling and risk stratification are well-positioned for acquisition, as healthcare systems and insurers seek to strengthen their population health management strategies.

Real-time data integration and interoperability are equally vital for VBC success. The demand for seamless data sharing across providers, payers, and patients is pushing the development of platforms that connect disparate systems. These platforms enable timely decision-making and foster coordinated care, addressing one of the primary challenges of traditional healthcare models. Companies with expertise in building interoperable

solutions that comply with stringent regulatory standards are emerging as valuable acquisition targets.

Measuring outcomes and benchmarking performance is another critical area where analytics is shaping VBC. Providers are increasingly reliant on robust tools to track key performance indicators, such as hospital readmission rates, care coordination efficiency and patient satisfaction. These metrics form the basis for evaluating the effectiveness of VBC programs and subsequently refining care strategies. Organizations offering sophisticated performance measurement and reporting tools are gaining prominence in the M&A landscape as stakeholders aim to optimize delivery and reimbursement models.

Assessing social determinants of health (SDOH) also has gained traction as an integral component of VBC. Analytics that incorporate data associated with non-medical factors — such as housing, transportation, and access to healthy food — enhance the ability of providers to deliver holistic care. This approach not only improves patient outcomes but also reduces overall healthcare costs, presenting a significant market opportunity for organizations that specialize in SDOH analytics.

The adoption of artificial intelligence (AI) is amplifying the impact of these analytic capabilities. AI-powered tools deliver deeper predictive insights, automate administrative tasks and enhance clinical decision-making. For instance, natural language processing can extract valuable insights from unstructured data, while intelligent automation streamlines claims processing and compliance monitoring. These advancements are attracting considerable acquisition interest as stakeholders look to scale their operations and improve efficiency.

Market Opportunity and Growth Drivers

The market for VBC analytics is expanding rapidly, driven by the increasing adoption of value-based payment models and the growing focus on patient-centered care. According to MarketsandMarkets research, the global healthcare analytics market is expected to surpass \$100B by the end of the decade,¹ with significant contributions from sectors such as predictive analytics, AI-driven tools and interoperability solutions.

Investments in digital health and analytics are being driven by both traditional and non-traditional players. Technology giants and private equity firms are rapidly entering the space, drawn by the potential for high returns and the opportunity to disrupt conventional healthcare models. These players bring not only substantial financial resources but also deep technological expertise, further accelerating the development and adoption of innovative solutions.

Regulatory and financial drivers also play a pivotal role in shaping the market. Continued support from the Centers for Medicare & Medicaid Services (CMS), including expanded reimbursement opportunities for Medicare and Medicaid programs, is further encouraging stakeholders to invest in VBC models. Additionally, the ongoing macroeconomic recovery is expected to unlock pent-up demand, leading to a surge in M&A activity in 2025.

The market for VBC analytics is expanding rapidly, driven by the increasing adoption of value-based payment models and the growing focus on patient-centered care.

Outlook for 2025

The outlook for VBC in 2025 is optimistic, with analytics continuing to play a crucial role in its evolution. As a result, organizations are expected to prioritize and increase investments in data-driven tools to enhance care delivery and operational efficiency. The expansion of primary care networks and specialty fields such as oncology and cardiology will remain a focal point, driven by the integration of analytics into capitation and episode-based payment models.

Digital health innovation, particularly in AI and SDOH analytics, will be a major growth area in 2025, with firms offering scalable solutions poised for additional investment and acquisition. Behavioral health integration is another emerging trend, as providers seek to create holistic care systems that address both mental and physical health needs.

As stakeholders adapt to these trends, investment and M&A activity are likely to remain robust, with significant opportunities for companies that lead in developing advanced analytic capabilities. By embracing these tools, healthcare organizations can navigate the complexities of VBC while achieving sustainable growth and delivering superior patient outcomes.



Zeke Navar

Managing Director, Head of HealthTech

¹ MarketsandMarkets, "Healthcare Analytics Market Review," October 2024.

The Importance of Vertically Specific Solutions in Regulated Industries

Procurement is a vital component of operations in regulated industries, where adherence to strict standards, efficient processes and robust risk management are essential. However, traditional procurement approaches often fail to meet the unique demands of highly regulated industries like healthcare, pharmaceuticals and financial services; these sectors operate under stringent regulations that require meticulous oversight of vendor relationships, supply chains and compliance documentation. Modern, vertically specific procurement solutions, tailored to address the distinct needs of these and other industries, are revolutionizing how organizations manage procurement. Such solutions provide enhanced compliance, process optimization and risk mitigation capabilities, making them indispensable within regulated sectors.

Addressing Regulatory Requirements with Precision

Organizations in regulated industries must comply with complex and varied regulatory frameworks, such as the Health Insurance Portability and Accountability Act (HIPAA) in healthcare, the Federal Acquisition Regulation (FAR) in government contracting, the Financial Industry Regulatory Authority (FINRA) rules for financial institutions, and the Drug Supply Chain Security Act (DSCSA) in pharmaceuticals. Non-compliance with these regulations can result in significant fines, operational disruptions, and damage to an organization's reputation.

General procurement tools typically lack the specificity to navigate detailed industry rules and requirements; in contrast, vertically specific procurement solutions are purpose-built to address these regulations. For example, procurement platforms in healthcare ensure that vendors meet HIPAA requirements for protecting patient data by including automated validation of compliance certifications and tracking of data-handling protocols. Similarly, in the pharmaceutical industry, tools align with DSCSA requirements by tracking the chain of custody for drugs, ensuring end-to-end visibility for traceability and safety. These solutions not only ensure regulatory compliance but also reduce the administrative burden of managing



complex, industry-specific documentation. For example, within the Biopharma sector, Scientist.com orchestrates and optimizes procurement by bringing the ordering of scientific services and products under one legal agreement – speeding up drug discovery while substantially reducing the regulatory burden for its customers.

Enhancing Transparency Across the Supply Chain

Transparency is a critical factor in regulated industries, where organizations must demonstrate accountability and adherence to ethical practices across their supply chains. For instance, the Conflict Minerals Rule under the Dodd-Frank Act mandates disclosure of the origin of specific materials to ensure they are not sourced from conflict zones. Similarly, the food industry must comply with the Food Safety Modernization Act (FSMA), which requires rigorous tracking of food products to enable quick responses to any contamination issues.

It is generally table stakes for these modern, vertically specific procurement solutions to provide robust tracking and reporting features that enable organizations to meet transparency requirements. For example, helping organizations verify the ethical sourcing of materials by incorporating supplier certifications and audit trails directly into the procurement workflow, and coupling these with insight into the full bill of materials comprising the product (from any original manufacturer all the way through to the finished product).

Streamlining Complex Procurement Processes

Given the degree of complexity in the legal frameworks governing their business activities, participants in regulated industries often contend with highly intricate and complicated procurement processes. These processes require multiple approvals, detailed documentation and collaboration among diverse stakeholders, such that inefficiencies can lead to significant delays, increased costs, and non-compliance risks. Vertically specific procurement solutions simplify these complexities by automating compliant workflows, streamlining approval processes and centralizing data – the work Quartzly

does for research laboratories to digitize their workflows, facilitate rapid and compliant procurement, reduce time to market and dramatically improve efficiency is a great example of this approach.

In the defense industry, for example, procurement activities must align with International Traffic in Arms Regulations (ITAR), requiring rigorous oversight of contracts and suppliers. A specialized solution can streamline compliance by embedding ITAR requirements into contract templates and automating the approval process. Similarly, in the construction sector where compliance with Occupational Safety and Health Administration (OSHA) standards is critical, procurement platforms ensure that vendors provide up-to-date safety certifications before contracts are finalized. These tools also improve stakeholder collaboration by providing a unified platform for communication and document sharing, reducing bottlenecks and enhancing efficiencies.

Supporting Risk Mitigation

Procurement in regulated industries involves significant risk – from supplier non-compliance and supply chain disruptions to cybersecurity threats – and reactive risk management approaches are insufficient in these high-stakes environments. Modern, vertically specific procurement solutions enable proactive risk management by directly integrating comprehensive risk assessment tools. For example, Achilles provides both industry- and country-specific solutions on a unified platform to meet the reporting needs across several, highly regulated heavy industry sectors.

In the financial sector, for instance, procurement platforms incorporate Office of Foreign Assets Control (OFAC) screening into vendor onboarding to ensure compliance with sanctions regulations, as well as embedding robust Anti-Money Laundering and Know Your Client (AML / KYC) workflows into the onboarding process. In the pharmaceutical industry, risk management features assess supplier reliability by analyzing past performance and compliance records, helping organizations avoid disruptions in critical supply chains. These solutions also address cybersecurity risks by adhering to best practice standards like the National Institute of Standards and Technology (NIST) Cybersecurity Framework. Secure platforms ensure that sensitive procurement data is protected from breaches, particularly in sectors like healthcare and financial services where integrity around confidential and often personally identifiable data is paramount.

Achieving Cost Efficiency

While implementing vertically specific procurement solutions may involve upfront costs, the long-term financial

benefits are substantial. These tools automate labor-intensive tasks, reducing administrative overhead and minimizing errors. They also leverage data analytics to identify cost-saving opportunities, such as optimal sourcing strategies, supplier negotiation tactics, guided buying and internal compliance with preferred vendor and contract pricing standards. For example, in the manufacturing industry procurement solutions analyze historical purchasing patterns to suggest bulk ordering options, thereby reducing per-unit costs. In healthcare, they are able to help identify alternate suppliers for medical equipment, ensuring competitive pricing without compromising quality or compliance. An excellent example of this is Arkestro, which takes a data science-driven approach to optimizing procurement by driving increased competitive bidding for high-value direct spend.

Preparing for Future Challenges

Regulated industries are constantly evolving, with changing regulations and growing demands for sustainability and ethical sourcing. Modern procurement solutions help organizations adapt to these changes seamlessly by offering regular updates that reflect new compliance requirements and industry best practices. For instance, as environmental regulations like the European Union's Green Deal impose stricter sustainability standards, procurement platforms integrate features that track suppliers' environmental impact, enabling organizations to meet these obligations. Similarly, as industries expand globally, these tools scale to manage increased volumes and complex international regulations without sacrificing efficiency.

Conclusion

Modern, vertically specific procurement solutions are essential for players in regulated industries that are navigating complex compliance landscapes and dynamic market demands. By addressing industry-specific regulatory requirements, enhancing supply chain transparency, streamlining processes and mitigating risks, these solutions enable organizations to achieve operational excellence and maintain compliance. As regulations evolve and the demand for accountability grows, these specialized tools will continue to play a critical role in ensuring the resilience and competitiveness of businesses in regulated sectors.



Todd Holman

Managing Director, Back Office and Procurement Technology

Navigating the Freight Recession Recovery

After two challenging years of what has been called the “freight recession,” marked by plummeting freight volumes and weakened consumer demand, the logistics industry showed signs of recovery in 2024. ACT Research projected a 3.2% rise in its Freight Composite Index by year-end¹, signaling a shift from the 2022-2023 downturn that saw freight volumes contract by 2-3% and trucking volumes drop 10-15%.⁽²⁾ Consumer demand, which had been suppressed due to inflationary pressures, also is recovering, and the industry has been further bolstered by better inventory management and recalibrated supply chains.

While early 2025 may still feel some ongoing aftershocks, industry experts anticipate solid growth by mid-year as economic conditions continue to improve. This recovery phase presents a strategic opportunity for companies to modernize their operations through technology adoption. Werner Enterprises CEO Derek Leathers describes it as a “unique chance” to address inefficiencies exposed during the post-pandemic downturn by adopting more advanced technologies.

Next-generation technology companies already are capitalizing on this opportunity. PayCargo is streamlining freight payment systems to enhance cash flow, while Green Mountain Technology is expanding enterprise parcel spend management solutions as volumes increase. Companies like Intelligent Audit complement these efforts and benefit from the industry’s move toward greater transparency and cost control in logistics operations. As the industry rebounds, shippers embracing technological innovation are positioned to lead the next phase of growth for their companies and the industry at-large.

M&A Resurgence and Venture Capital Reignition in Logistics Technology

This phase of recovery also is driving a resurgence in M&A activity within the supply chain and logistics software sectors. Following a slowdown in logistics technology M&A deal activity over the past two years in the sector – down ~40% in 2H2024 compared to the



2021 peak – 2024 volume has stabilized and now is above pre-pandemic activity.³ As digital maturity in the sector increased by 50% from 2019 to 2023,⁽⁴⁾ AI-driven logistics technologies emerged as key M&A targets and accounted for ~35% of logistics technology deals in 2024.⁽⁵⁾ A prominent example is Blue Yonder’s \$839M acquisition of One Network Enterprises this past August, enhancing the company’s AI-powered supply chain visibility and expanding its network of 150,000+ trading partners.

Private equity remains active, with a notable shift in 2024 away from new platform investments and toward strategic add-on acquisitions. This trend underscores growing demand for solutions offering supply chain optimization, visibility and automation. Companies that enable real-time data-driven decision-making are well-positioned to capture this increased interest. Looking ahead, challenging market conditions have created attractive M&A opportunities, with valuation expectations becoming more reasonable for both sponsor and strategic acquirors.

On the venture capital side, investment in logistics tech fell by 20% year-over-year, reaching just \$7.9B in the second half of 2024.⁽⁶⁾ This decline reflects a broader shift in market dynamics, where logistics technology consumers are increasingly focused on “need-to-have” versus “nice-to-have” technologies amid long sales cycles and demanding implementation requirements. However, companies with strong unit economics and recurring SaaS revenue models that deliver mission-critical solutions continue to thrive. For instance, in November OneRail secured \$42M in Series C funding led by Aliment to tackle last-mile delivery challenges,

¹ ACT Research, “Trucking Industry Forecast for 2024,” January 2025.

² TruckingInfo and FTR research, “What Economic, Trucking Numbers Tell Us About Recession Likelihood,” September 2022.

³ Capstone Partners, “Logistics Technology Sector Update,” October 2024.

⁴ Accenture research, “Next stop, next-gen,” July 2024.

⁵ Capstone Partners, “Logistics Technology Sector Update,” October 2024.

⁶ Ibid.

while Gnosis attracted investment from Vista in September to enhance container and port visibility. These deals highlight continued investor interest in category leaders addressing mission critical challenges within logistics. Similarly, companies like Quuppa and Cognosos are advancing AI-driven real-time location services, while Raft.AI is automating document workflows for freight forwarders and 3PLs.

The sector's long-term deal activity outlook remains strong, as both companies and investors seek next-gen solutions to navigate the complexities of supply chains amid e-commerce growth and still-low overall digital maturity. This is particularly evident in emerging leaders like Reveel, which is addressing the underserved mid-market and SMB parcel spend management segment as logistics operations begin to scale up following the recent downturn.

Key Themes Driving Recovery

In the wake of unprecedented supply chain disruptions during the pandemic, organizations have fundamentally reimagined their operations, moving beyond mere recovery to systematic transformation. While many lessons have been learned as a result, one stands paramount: upstream visibility – particularly in planning and procurement – serves as the cornerstone of downstream logistics excellence. Companies that deeply understand and optimize their source-to-pay processes, demand planning and procurement operations are best positioned to execute flawlessly across their logistics networks.

Several interconnected themes are emerging as cornerstones of the freight recovery, and companies addressing these areas are positioned to lead the resurgence.

Integrated Planning and Procurement: Companies like Crisp and Invent Analytics are revolutionizing planning for the retail and CPG sectors by providing deep demand forecasting capabilities. This integrates with procurement solutions from companies like SourceDay and Keelvar, creating a solid foundation for downstream execution. When organizations have clear upstream visibility into planning and procurement, they can better orchestrate their entire supply chain.

Connected Document and Payment Workflows: The flow of information and money is as critical as the flow of goods. Companies like Raft.AI are automating document workflows across procurement and accounts payable, while PayCargo and Intelligent Audit are streamlining freight payments and auditing. This documentation and payment visibility directly affects physical logistics execution by reducing delays and exceptions.

Multi-Modal Visibility and Risk Management: Building on strong planning foundations, companies need granular visibility across modes and facilities. Solutions range from Cognosos and Quuppa providing AI-driven RTLS visibility within facilities, to TransVoyant and Overhaul offering specialized visibility for high-value goods. At ports and terminals, Gnosis, Tideworks and Advent eModal deliver container lifecycle management, terminal visibility and port operations optimization. This comprehensive visibility layer helps execute against upstream plans while managing risk and improving flow through key shipping infrastructure.

Orchestration and Execution Optimization: With upstream visibility established, companies like Parade.ai and Holocene are optimizing execution through freight matching and supply chain management tools. Digital freight platforms like Cogoport and uShip are creating efficient marketplaces that connect capacity with demand, while warehouse and order management platforms like Deposco ensure smooth execution of upstream plans. These execution layers rely on clear visibility into upstream planning to function effectively.

System Integration and Data Flow: Tying everything together, companies like Kleinschmidt and Orderful provide the critical EDI/API infrastructure that enables data to flow seamlessly between planning and execution systems. This integration layer ensures that upstream visibility translates into downstream execution improvements, creating a truly connected supply chain.

A Bright Future

As the freight recession wanes, the logistics sector is primed for continued transformation. The convergence of economic recovery and technology adoption is enabling next-generation logistics technology companies to address specific pain points across the supply chain, from port operations to payment processing, ultimately shaping more efficient global supply chains.



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The Trend Towards Greater Digitization Continues

Industrial sectors provide the critical foundation for global economic activity, and enterprises operating in these sectors continue to navigate a transformative era of digitization. They still face complex challenges, including labor shortages, cost pressures and sustainability mandates, and digitization has emerged as a critical enabler for modernizing operations, addressing inefficiencies and driving growth. Meaningful investment in industrial and construction software persists across industry use cases, and will continue to do so.

Investing in Real-Time Data and Analytics

Data rapidly has become critical for decision-making in modern construction and manufacturing – these sectors, though data-rich, still lag other sectors in terms of data analytics usage. Equipping leaders with real-time data promises numerous benefits, including 10-15% estimated cost savings on construction projects, through reductions in budget and timeline deviations as well as engineering hours.¹

Predictive analytics leverage historical and real-time data to forecast potential delays and equipment downtimes. These tools enable firms to proactively address risks, reducing costly operational disruptions. For example, MachineMetrics' condition monitoring solutions transform users' approach to maintenance, allowing them to keep equipment running longer and healthier.

Similarly, real-time dashboards provide a comprehensive view of an organization's current operations, enhancing communication between teams and stakeholders. These systems streamline workflows, improve collaboration and enable faster response times, often in highly complex environments. Raken's construction data analytics software automatically analyzes information collected through daily logs, timecards and other sources, so that advanced algorithms and AI can then be applied to draw real-time insights and track project performance. As industries digitize further, real-time analytics will become an indispensable tool for driving productivity and reducing inefficiencies.



Investing in a Resilient Workforce

Labor shortages persist as one of the most significant hurdles for construction and manufacturing companies. According to the 2024 Workforce Survey by AGC, 73% of construction firms plan to add employees within the next year – and yet, 85% report that hiring has become as challenging, if not more so, than in 2023.⁽²⁾

The struggle to attract and retain skilled workers is pushing firms to innovate in talent acquisition and development, and digitization again offers tools for addressing these challenges. Virtual recruitment platforms and industry-specific labor marketplaces, like Veryable, provide on-demand access to skilled workers. To reduce turnover and respond to workers' evolving career expectations, companies also are adopting advanced workforce management systems. By the end of this year, more than 80% of large enterprises with hourly employees are expected to use software that captures employee sentiment, suggests flexible scheduling and facilitates skill development.³ These tools align labor supply with demand, fostering a resilient workforce prepared for future challenges.

Emerging technologies also are set to improve worker health and safety, a critical aspect of workforce resilience. Wearable devices such as smart helmets, fitness trackers, and connected safety vests are increasingly popular. For instance, Excellent WebWorld's Smart Helmets provide integrated end-to-end tracking, pressure and temperature monitoring, proximity detectors, impact alerts, panic buttons and more. Computer vision solutions are also gaining traction. Leveraging existing camera infrastructure, these tools can provide real-time alerts for hazard

¹ Deloitte research, "AI in construction and infrastructure," April 2020.

² Associated General Contractors of America, "2024 Workforce Survey," August 2024.

³ Deloitte research, "2025 Manufacturing Industry Outlook," November 2024.

detection and personal protective equipment (PPE) compliance. Companies like Oosto are at the forefront here, using AI to improve on-site safety.

Investing in Sustainability and Efficiency

Deloitte has reported that 50% of global corporations are implementing technology solutions for environmental goals, and that 42% plan to do so within two years.⁴ Sustainability has become a critical priority for construction and industrial firms, driven by regulatory pressures, increasing demand for environmentally responsible practices and attractive cost efficiencies. Digitization plays a vital role in advancing these objectives.

Energy-efficient machinery and processes are becoming more prevalent, significantly reducing operational costs and carbon footprints. For example, DataPARC (Spectris) offers real-time dashboards to track machine utilization, equipment status, energy efficiency and site-level environmental impacts.



Building Information Modeling (BIM) remains a buzzword in construction, and for good reason. Though not a new concept, additional benefits of BIM optimization have emerged for scheduling, cost and materials estimates, facility management and occupational health. Procore BIM is one of many solutions in the market that unlocks efficiencies to stakeholders in the construction field.

Optimizing logistics is another avenue for improving sustainability. Advanced route planning and fleet management systems minimize fuel consumption and emissions, creating more efficient supply chains. Companies that invest in green logistics solutions not only meet environmental goals but also gain competitive advantages in cost and market reputation. For example, Kojo's software provides an end-to-end procurement, tools and

The continued digitization of the construction and industrial sectors is reshaping their trajectories. By investing in real-time data and analytics, a resilient workforce, sustainability and efficiency, these industries are addressing critical challenges and unlocking new revenue and profit opportunities.

warehouse solution to reduce time spent on processing orders, automate warehouse fulfillment reporting, and enhance collaboration between prefab and field teams.

The Year Ahead

The continued digitization of the construction and industrial sectors is reshaping their trajectories. By investing in real-time data and analytics, a resilient workforce, sustainability and efficiency, these industries are addressing critical challenges and unlocking new revenue and profit opportunities.

Looking ahead, the momentum toward digitization will only accelerate. Firms that embrace these trends are poised to thrive, balancing operational efficiency with sustainability and workforce needs. As industry leaders navigate this transformation, they must prioritize strategic investments in technology and talent to remain competitive in an evolving landscape. The future of construction and industrials lies in the integration of digital tools to drive resilience, innovation and growth.



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⁴ Deloitte research, "2024 CxO Sustainability Report," November 2024.

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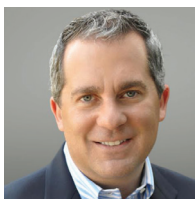
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