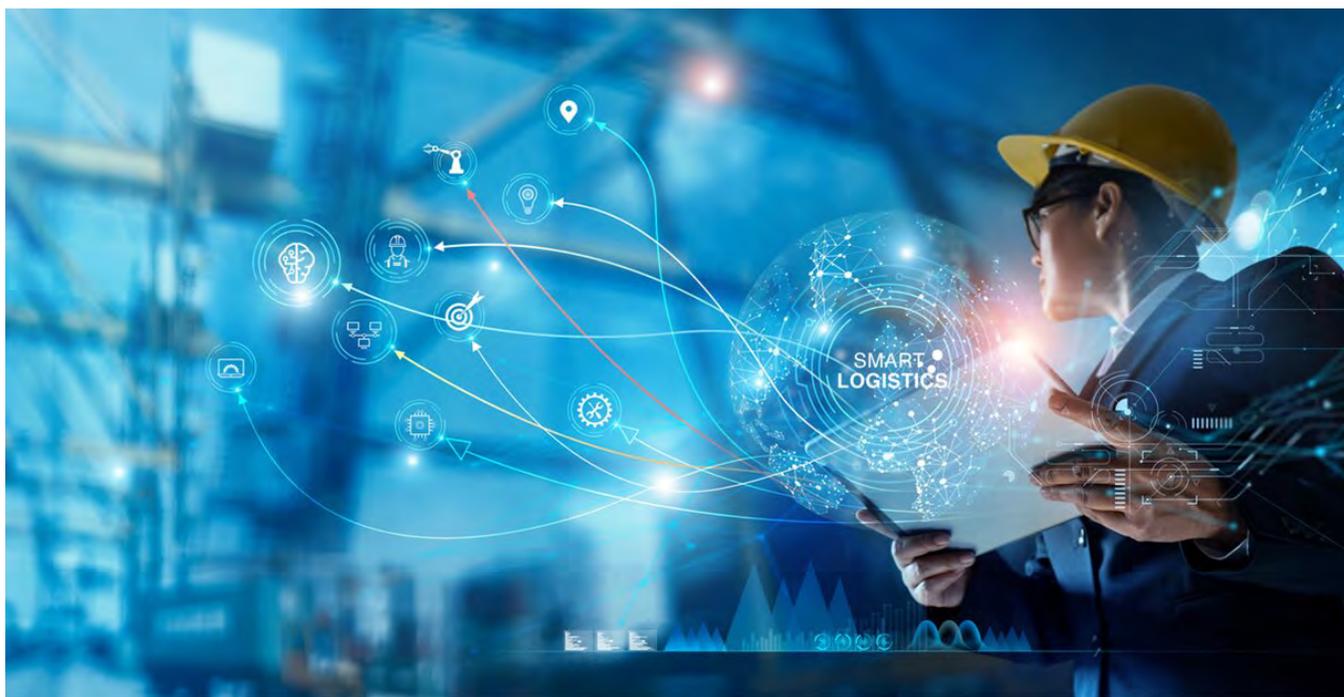


PE's Traverse into Supply Chain Technology Not Without Some Pitfalls

As private equity and growth investors descend on the segment, a “thesis trap” may confront those without the right kind of experience or track record.

By [Ken Koenemann](#), VP of Technology and Supply Chain, TBM Consulting Group
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[Source: Getty Images]

Few, if any, observers have a better view into the impact of the supply chain crisis than private equity general partners. They see the wide-ranging impact across their entire portfolio of companies, across different sectors and end markets, and from different perspectives across the value chain. Many, for instance, may own manufacturers who are today being forced to figure out inadequate workarounds to solve for repeated raw material shortages, whereas other portfolio companies in retail may be confounded by inventory, logistics, and distribution gaps quickly becoming a governor on growth. But GPs are nothing if not opportunistic and, in every challenge, lies the next great investment thesis.

The supply chain crisis, in particular, has attracted an increasing number of sponsors now targeting companies able to solve these issues. And many are finding that the supply chain “niche” is far more expansive than some might assume, particularly among vendors equipped to help operators better manage the risk and complexity that characterizes procurement, inventory management, warehousing and transportation. Not surprisingly, investors are gravitating to tech and software segments within the broader supply chain space.

This is, in part, because investors recognize that cutting-edge technology will simply become table stakes to run and optimize increasingly complex supply chains in the future. Moreover, automation is no longer a choice – not when labor shortages and turnover represent equally acute risks in which no other workaround exists other than robotics and automation.



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Beyond the obvious demand for supply chain solutions, other longer-term tailwinds trace back to secular trends, not the least of which include the growth of omnichannel retail and direct-to-consumer strategies of manufacturers. These trends alone should fuel growth over the medium- and long-term time horizons. At the same time, policymakers increasingly recognize the country’s manufacturing base and supply chain as critical infrastructure that should fuel investment in new technologies for the foreseeable future. (The \$52 billion CHIPS and Science Act puts a number on the extent to which Washington is prioritizing these areas today.)

From an investment perspective, the stars have seemingly aligned for the supply chain segment, particularly those offering software or tech-enabled solutions. The caveat, however, is that while digital transformation represents its own compelling catalyst in the segment, it’s also altering what “specialization” should look like in the sector. And past experience investing in more traditional supply chain companies may no longer be applicable to capitalize on the opportunity.

Strategic Activity Beckons PE Interest

To be sure, deal flow and investment activity in supply chain technology is as vibrant as it has been. Strategic activity – particularly from new faces in the supply chain space – speaks to the appetite among larger multinational companies keen to turn the challenges into a competitive advantage.

In retail, Walmart acquired peer-to-peer last-mile delivery platform JoyRun; American Eagle acquired shipper-aggregation startup AirTerra and “in-market” fulfillment-center operator Quiet Logistics; And, most recently, Amazon bought Belgium-based Cloostermans, a designer and manufacturer of mechatronics solutions used to move and stack heavy pallets and totes.



The biggest challenge across the supply chain – one that cuts across all companies and nearly every niche – is the need to drive productivity.

This activity among strategics, of course, is not overlooked by private equity investors, who view the strategic demand as the final piece of a seemingly airtight investment thesis. Last year, according to PitchBook Data, financial sponsors secured 53 new investments valued at \$20 billion. This surpassed the value of all deal flow over the previous three years in the supply chain tech vertical. Exit activity also surged as GPs secured 21 total realizations of supply chain technology investments worth a combined \$13.5 billion.

Why Tech? Reduce Risk, Replace Resources

Again, the supply chain segment at large is quite vast and there is no shortage of opportunities outside of tech for sponsors to step in and address the gaps. KKR, for instance, acquired Hitachi Transport, [the third-party logistics business of Hitachi](#), earlier this year for over \$5 billion, while [Sun Capital is pursuing a rollout of intermodal drayage and warehousing companies](#) through its Total Transportation Services platform. (Drayage, for the uninitiated, refers to the transportation of freight from an ocean port and is colloquially referred to as “first-mile” transportation.)

But the biggest challenge across the supply chain – one that cuts across all companies and nearly every niche – is the need to drive productivity. Simply put, operators, to compete or grow, must

move goods and products more quickly and efficiently from manufacturer to end consumer and be agile enough to accommodate raw material shortages or labor disruptions as they occur. The labor crisis, for instance, has created a ripple effect in which warehousing and transportation have been among the most affected areas, cutting into on-time delivery rates, fueling higher input costs, and exacerbating supply shortages.

Technology that can either manage these risks or eliminate the “people” problem altogether should emerge as winners. Unfortunately, it’s not as simple as buying companies that claim to solve these challenges.

Software to Manage the Risks...

One of the challenges of investing in software is the paradox of choice that characterizes the solutions available to both operators looking to utilize technologies and GPs investing in them. “Control tower” software, for instance, can provide end-to-end visibility to track deliveries in real-time; forecasting tools, similarly, can help inform planning and budgets over short- or longer-term time horizons; while inventory management tools help companies track purchase orders, fulfillment, sales, and product levels.



Yet one glaring hang-up remains, especially given the objective of automation, which is that even the most advanced robotics very often require human intervention.

However, the solutions that stand out in today’s environment, are tools that allow operators to better manage their risk. Advances leveraging the cloud, AI and machine learning, as well as IoT capabilities, can provide insights and signals that wouldn’t otherwise be available. They can connect disparate segments across the supply chain, factoring in supplier locations, port data, geopolitical developments, and an almost limitless number of other inputs. These tools can give operators a view into the future to predict where disruptions are most likely to occur as well as the knock-on effects they can have on the business.

Robotics to Solve Them

In one sense, few areas across the economy have adopted automation and robotics more enthusiastically or effectively than certain areas across the supply chain. Yet, the technologies being deployed are quite dated in many cases, to the point that they're relatively immature today. This point is underscored by the extent to which new advances in robotics have leapfrogged the industrial belt conveyors and automated sorting systems are still quite common in most warehouses and fulfillment centers today.

Yet one glaring hang-up remains, especially given the objective of automation, which is that even the most advanced robotics very often require human intervention. Even Amazon, a first mover and innovator, largely relies on "co-botic" solutions to ease manual roles rather than replace them outright.

Since Amazon acquired the maker of Kiva warehouse robots in 2012, the company has rolled out autonomous mobile robots to help move heavy objects; robotic workcells using advanced AI to lift and sort packages; and even ergonomically designed containerized storage systems that help fulfillment-center employees find and retrieve specific products.



Amazon Robotics develops software and manufactures machinery to automate the flow of inventory in Amazon fulfillment centers. [Source: Amazon]

The killer app in supply chain robotics, however, will be automation that replaces – instead of just assisting – labor. Enhanced productivity and sustainable efficiencies are just as critical, but technology that eliminates the threat of workforce shortages will help solve for a trend that poses an increasing risk for the foreseeable future.

Avoiding the ‘Thesis’ Trap

Private equity investors are quite familiar with a value trap – or assets that appear cheap but also carry significant, unseen risks that stand in the way of multiple expansion. The supply chain technology segment, however, represents something of a “thesis trap.”

Several secular trends, for instance, have conspired to create a truly compelling window for investors active in the space, characterized by a deep, pressing need in the market; powerful tailwinds in the form of government support and shifting consumer shopping behaviors; as well as accelerated transformation driven by advances in AI and cloud technologies, as well as robotics and additive manufacturing.

Ironically, this last point that underpins most investment theses also creates some pitfalls for investors. GPs may have an extensive track record across the industrials, transportation and supply chain verticals, but if they’re less familiar with technology and software investments, they may be ill-equipped to capitalize on the opportunity.



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To be sure, supply chain technology investments require an entirely different playbook. This is true, not only to underwrite investments premised around growth versus asset values but also to effect value creation and realize the growth assumptions that informed an entry multiple. Other differences also emerge.

For instance, buy-and-build strategies, which can be effective, also demand a deep technical skillset to create a seamless suite of capabilities that are each compatible with the other and can

be integrated into larger product lifecycle management (PLM) platforms. Moreover, with so many variables across the supply chain, system implementations can take longer than most might anticipate. If the solution doesn't meet identifiable service level agreements (SLAs), investors will quickly discover recurring revenues aren't always as predictable as promised.

Another go-to initiative – particularly in private equity's middle market – is to build out a sales and marketing function. But this relatively simple initiative can be more nuanced and even less reliable for SaaS solutions that have a longer sales cycle, often require strategic trial periods, and rely on sophisticated up- and cross-selling strategies to boost annual recurring revenues (ARRs). Manpower, alone, is inadequate.

Finally, investors in nearly every sector are aware of the Amazon threat. In the supply chain technology segment, investors also must worry about Microsoft, SAP, Oracle and several other dominant incumbents. On one hand, these giants may represent a prospective buyer of any new technology. On the other hand, as the tech giants focus on building out their own suite of supply chain software, smaller vendors have to worry about falling on the wrong side of the “Beta vs. VHS” conundrum. (They may have a better competitive alternative, but without critical mass, their solutions will fail to gain any traction). And across such a global, interconnected landscape, this risk may be even more pronounced than in other sectors.

None of this is to say that the opportunity set is any less appealing. And outside of the software and robotics verticals, there are plenty of attractive niches across the supply chain that represent a compelling fit for specialists in the industrial manufacturing and transportation sectors. Supply chain technology, however, will require a more unique skill set.

That being said, the segment is ripe for investors well versed on the pain points and complexity across the supply chain and equally adept at digital transformation and growing great technology companies able to compete with the world's largest vendors. It's a perfect storm that can deliver outsized rewards, but it will require flawless execution to capitalize on the opportunity.

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**About the Author**

[Ken Koenemann](#) joined North Carolina-headquartered TBM Consulting Group, an operations and supply chain consulting firm, in 2006. TBM's clients include manufacturers, distributors, service companies, private equity firms and their portfolio companies. TBM specializes in operational excellence, supply chain management, human capital strategy, private equity value creation, digital manufacturing, and management system implementation.

Mr. Koenemann is widely recognized for his expertise in translating lean principles to supply chain and customer-facing processes in manufacturing and service organizations. Over the past three years, he has become responsible for growing the supply chain practice and driving TBM's technology strategy, creating value-added technologies and services for client business operations. During his career, he has consulted with leading companies including Pella Corporation, Owens Corning, Dell, WIKA Instruments, Carlisle Companies, and Trinity Industries.

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