Follow The Money:

A Look at Supply Chain Technology Investing Today

By

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Where are we going?

Venture capital, private equity, and strategic investors help shape the future of supply chain by funding the innovation that creates new business models and capabilities. Supply chain investing today is an interweaving of stories featuring:

- self-funded twenty-something developers in a basement, surviving on Ramen Noodles & Red Bull, and cranking out dynamic routing code for their world-class last-mile delivery software,
- to venture capital (VC) firms betting on robots and drones,
- to multi-billion-dollar private equity (PE) firms looking to create the next global cloud-based logistics software company or service provider.

It is a fascinating story with a wide range of players and possible outcomes. We'll be sharing some of these stories and exploring how economic and technology will alter supply chain strategies going forward.

We will cover three main topics:

First, we will explore the current investor marketplace and where all the players fall in the spectrum of supply chain investing—from angel and venture capital funding of startups, to the huge sums being spent by strategics and private equity firms on building the next generation logistics technology and service providers.

Second, we'll examine the primary trends driving longer term, venture-related investments in supply chain. But they are not your usual companies. Think autonomous vehicles, drones, robots, wearables and big data, instead of supply chain security, driver shortages or sustainability.

Third, we'll look at where the billions are being spent on supply chain investments today by VC's, strategics and PE firms. What surprises me most is the smallish role most VCs firms have in 'traditional' supply chain investing (such as new software to better manage supply chains) versus the PE community who are doing M&A rollups in the supply chain technology and service provider spaces.

What are the key trends impacting global supply chains and where are investors putting their money?

So, what's on supply chain executives worry list today? We have, below, a list of the usual suspects—all valid and of great concern to many supply chain executives. And I am sure that readers can all add more problem areas without much trouble at all. In no order:

- *What's on the worry list of supply chain executives today*?
  - Omni-channel distribution
  - Technology upgrades
  - Risk management/security
  - Sustainability
  - Social (collaborative) supply chains
  - Globalization of supply chains
  - Outsource/insource operations
  - Carrier/competitor consolidation
  - Labor availability

Let's look at two of these trends that are currently impacting supply chain equity investing decisions:

Omni-Channel Retailing

Travel with me to 2020 for a few minutes. You sit in your office trying to figure out how you can handle hundreds of Uber couriers showing up at your retail stores every day looking for on-line orders from your customers that want same-hour delivery. Or you are a manufacturer or distributor whose retailers/direct channels wants you to drop ship via courier from your warehouses (or plants!) to these same customers with the same impossible delivery windows.

Fact or fiction? I can't give you exact dates when on-line will exceed traditional store business, but the e-commerce tsunami is coming over the next decade. The numbers are already staggering in the US and Europe. On-line commerce has grown 60% in the last five years and shows no signs of slowing down. By 2017, it's estimated that 15% of the UK orders will be made on line, with an 83% online growth in western European orders by 2020.

And current distribution systems are having serious problems handling the onslaught of peak period e-commerce orders. UPS and FedEx, among others, set time limits around holidays and parcel quotas on many large e-commerce shippers in the last few years to stem the tide. And as we all know, instant response, and so-called 'free shipping' will have major margin impacts across the supply chain as manufacturers and retailers are forced to use more expensive delivery solutions to meet ever increasing customer service needs.

And what happens when thousands of freelance couriers join the picture and start competing with UPS & FedEx for last mile delivery? Picture them showing up at stores and warehouses and perhaps plants, where special pick & pack operations will be needed to prepare the orders. Great fun for the store and warehouse employees…and is your software capable of dealing with all these 'special orders"?

VC's are spending billions today developing last mile delivery startups across the globe. Their aim is to satisfy the consumer who wants what they want when they want, often within a few hours. How will your supply chain cope with these challenges?

The Internet of Things

If that wasn't enough to worry about, what impact will the Internet of Things have on supply chains? If you have not heard, the Internet of Things aims to connect complementary technologies in all sorts of spaces—homes, industries, governments, all enabled by our smart phones.

Let's first have a look at the technology. Mobile devices of all kinds in the hands of consumers will continue to grow exponentially over the next decade. They will become more and more enabled—controlling our homes, letting machines request service, monitoring consumption and automatically reordering products, among many other applications.

All this data can easily feed back into supply chains—Your oil tank is low? Ping the dealer. Your refrigerator has a failing compressor? Ping service and order the part from the manufacturer. We are running low on milk? Let the store know and have a courier bring some for my morning coffee.

In the past, all these 'orders' flowed through nicely controlled demand channels that companies set up to manage their operations—suppliers to manufacturers to distributors to retailers to consumers. Orders came into the front end of the supply chain and were passed up the echelons to be filled. In the future, orders can conceivably fly in the door to all points on the supply chain from anywhere via the web, simultaneously, without any regard for inventory levels or ability to ship. The Internet of Things will radically change the way we must do business in the supply chain world.

And it’s a huge opportunity for investors to fund all these new wireless or GPS or cellular enabled apps and hardware that will connect everything to everything else (often, without regard as to the desirability of being connected), spew out huge amounts of data, and expect you and your company to sort through everything and figure out how to fulfill demand.

We exaggerate a bit, but you can be sure VC’s will invest billions to make this all happen over the next decade.

And where are investors putting their money to work in supply chain today? Not in too many areas, except maybe last mile, which are high on your worry list today:

- *Where are investors betting on the future?*
  - Last mile/mobile
  - IoT
  - Drones/robots/autonomous vehicles
  - Big data
  - Industry consolidation (software, providers)

Drones/robots, you ask? What do they have to do with today’s supply chain problems? Not much… today. But it’s where investors are focused today, betting that you will have great needs for these solutions in five years or so. VC’s are investing today in many companies that they hope will help you deal with the omni-channel, IoT and e-commerce challenges in the coming years.

Let’s examine four of these areas in a bit more detail—last mile logistics, the internet of things, drones and robots in more detail.

Got driver shortages? Not to worry. Let’s get autonomous vehicles working in all segments of the supply chain. Rio Tinto has partnered with Komastsu to use autonomous trucks in their mining operations, running 24/7 without so much as a bathroom break. Daimler is road test its autonomous Class 8 tractor today in Nevada. Yard spotter trucks, forklifts and local delivery autonomous vehicles are in final stages of development.

Got the Big Data Blues? Investors are putting cash in applications that will parse, manage and integrate new data feeds and sources into useable information that can help us better manage supply chains. For example, using vehicle location to improve dynamic routing and stop optimization while the vehicle is on a delivery run, something FedEx and UPS do quite well today, but is just moving into other supply chain delivery applications.

Got Last Mile Headaches? Call in the drones! Employ them for local delivery operations from autonomous vehicle warehouses. Or use them to patrol freight terminals and yards to deter theft, take inventory in warehouses using readers, or monitoring employees at complex pack and ship facilities.

Got a Lack of Skilled Labor? Robots will be used for all kinds of supply chain tasks--operating pick pack lines and trailer load unload in warehouses, on factory floors and perhaps soon at retail stores, proving a silent companion for stocking clerks to enhance productivity (bringing the stock to the stocker, like Kiva pioneered bringing the pick to the picker.

Investors: Different Stages, Different Focus

Venture Capital

Venture capital firms are looking to invest in companies that have at least a $100M exit potential. The nasty little secret is that only 10-15% of venture capital investments return above one times capital deployed. VC's survive by having a few huge winners in a fund, with lots of modest returns and many failures.

Current day venture capital investment is heavily weighted to later stage growth investing, where the company has a proven business model and needs capital to roll out to new verticals or markets. The typical fund has a life span of seven to ten years. Limited partners can expect returns after year five, unless an earlier exit is made-but no guarantees! And, if you are an investor, you can't take your money out early, no matter how much you might like to.

Who are the players? There are no truly dedicated supply chain VC's, except perhaps Supply Chain Ventures (Descartes, Resilinc, Steelwedge, among others). Bain Venture Capital (Kiva Systems), Charles River Ventures (One Mile), Lightspeed (Elementum), Shasta (Resilinc), NEA (FushionOps) have all dabbled in the traditional supply chain software space. As we shall see, however, VC's are aggressively investing billions in the future of supply chain technology—think last mile delivery startups.

Private Equity

Unlike VCs, **private equity firms** are generally not early-stage investors. They are looking for mature companies in need of growth capital, or 'rehabilitation'—the polite word for a makeover. They adore market rollups that lead to a tasty IPO.

Their investing horizon tends to be three to seven years, and they are always looking to sell any of their portfolio companies, do an IPO, or sell a company to another PE firm with broader ambitions. When selling a company to another PE firm happens a few times, we call it 'PE hoteling'. That process can be a living Hell for company executives, who are under constant pressure to improve operations across multiple owners, or be fired.

Who are the players? New Mountain Capital has rolled up the legacy supply chain software space (JDA, i2, Manugistics, E3, and Intactix). Francisco Partners is moving into the global trade management space with acquisitions such as Kewill, Foursoft, IBM's TMS software and NEXTRAQ. Greenbrier Equity is combining logistics software and service providers like Transplace, Celtic International and SEKO Logistics. TPG has acquired a controlling share in Transpereon. We'll cover more of these in a bit.

Strategics

There are at least two kinds of **strategic firms** in the supply chain space—technology platform companies and logistics service providers. Most, if not all, are public companies with broad global reach. Their investing horizons are long term—five years and up. Most are serial acquirers, looking to gain scale and revenue, but some are not, preferring internal R&D and/or new market rollouts.

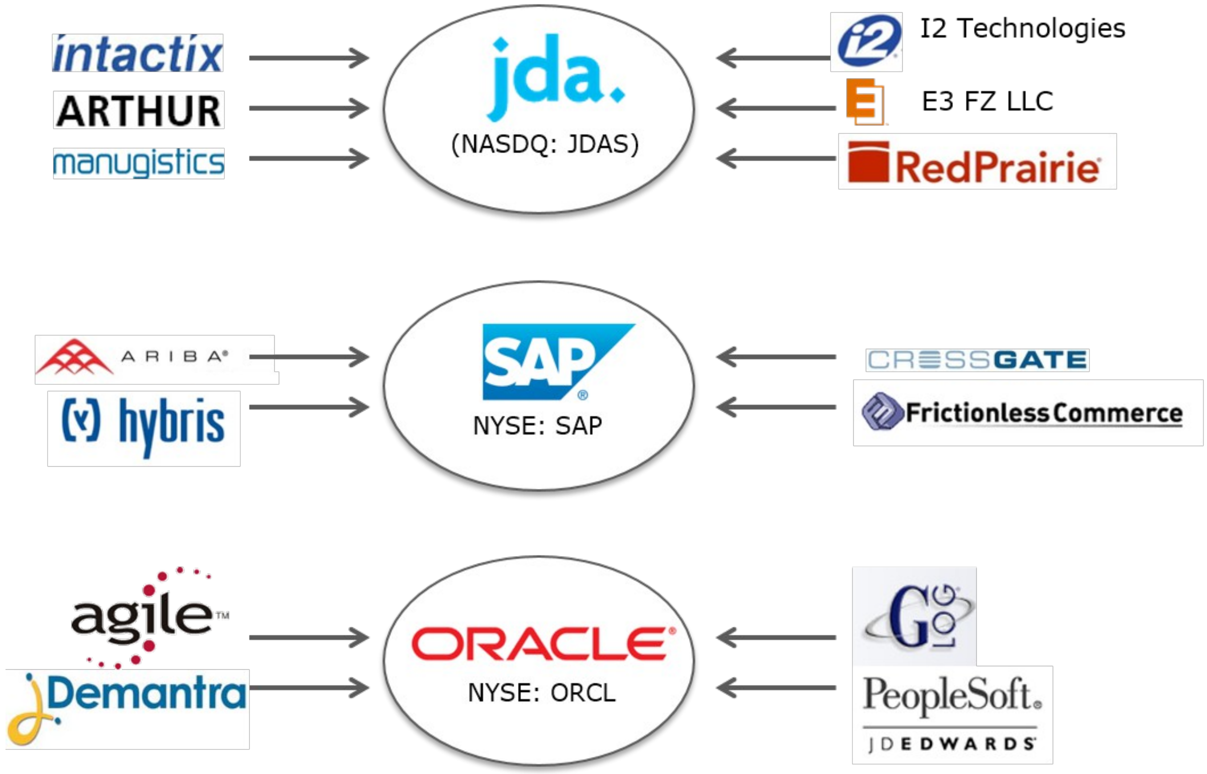
Who are some of the major **supply chain technology platform players**? SAP, Oracle, and Manhattan are certainly the kings of supply chain software, with the largest companies having some of their supply chain solutions in house. As we shall see, however, they have been slow to adapt to the cloud and emerging solutions revolution. They have made only a few, catch up, acquisitions.

Accenture, Trimble and Descartes are much more interesting and innovative, if smaller, players in this market. Accenture is making a big push into procurement outsourcing, Descartes has been a leader in building out the Global Trade Management and local delivery routing spaces, and Trimble in mobile resource management.

For **logistics service providers**, we have lots of interesting strategic players. FedEx has just bought Genco (reverse logistics) from Greenbrier; XPO Logistics is buying everything that is not nailed down in the asset–light logistics space, including Norbert Dentressangle. CH Robinson bought Freightquote, its virtual competitor and let's not forget Coyote Logistics and its huge appetite for truckers, although they are technically still owned by Warburg Pincus.

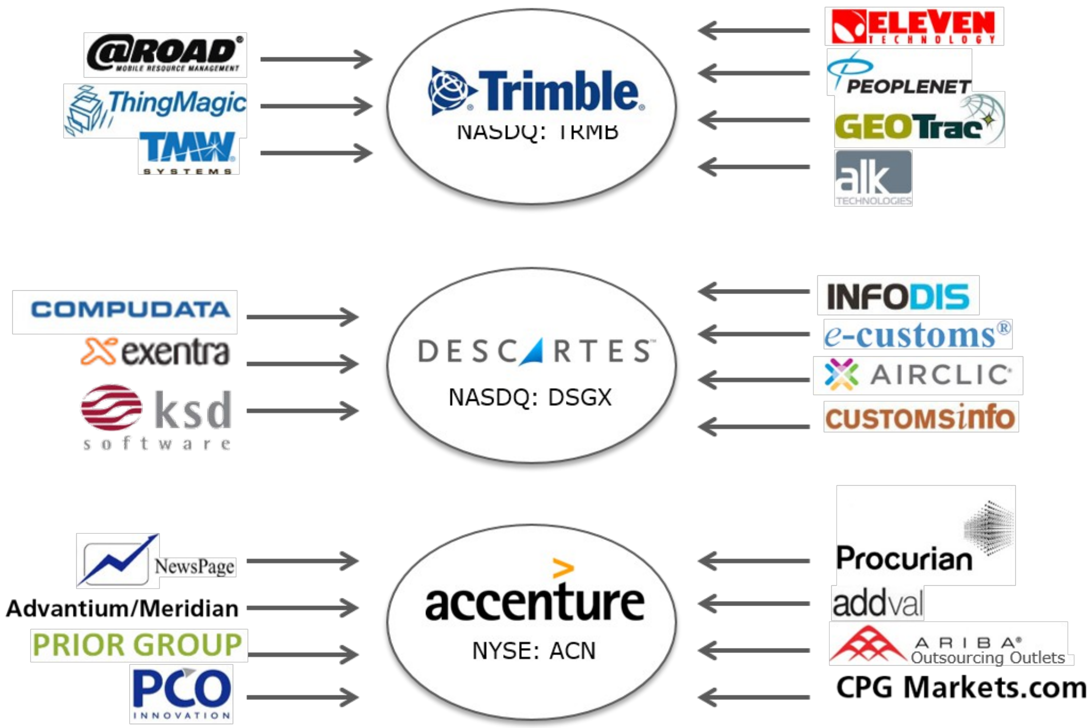
Let's first look at how strategic players in supply chain technology are investing in new solutions to meet the emerging challenges to efficient and effective supply chain operations. We've divided the players into two camps—old school and new school.

The **old school supply chain technology companies** are those who have served us well over the past decades, managing S&OP, transportation, warehouse operations, inventory management, procurement and the myriad of other tasks that make up supply chains today. But's what's going on with them?



SAP, Oracle & JDA, although they still invest in their current technologies, have not made many recent acquisitions, nor have they fully ported their technology to the cloud. Their current solutions are primarily enterprise software offerings, but they are having problems competing with emerging best-in-class SAAS supply chain solutions. That said, it is likely that these solutions will remain as the primary supply chain management tools for many companies for years to come, partly due to employee familiarity and partly due to the high costs of switching.

Trimble, Descartes and Accenture are examples of the **new school of technology strategics** focusing on the supply chain. They differ from the old school guys in that they are mostly cloud enabled and focus on key emerging areas of supply chain challenges. Trimble, for example is focused on the MRM (mobile resource management) space, enabling real-time management of over-the-road(OTR) and local delivery operations. Descartes is a major player in GTM (global trade management), assisting companies with customs, compliance and security of cross-border moves in the fast-growing world trade environment. And Accenture is making a big play in procurement outsourcing, managing billions of dollars of supplier purchases for leading global companies.



Next, we will briefly focus on some of the more interesting **strategic logistics providers**, public companies that are redefining the transport and logistics solutions space today. We see a couple of interesting trends developing—extending provider global reach, investing in new service offerings, gobbling up competitors and moving to become full service logistics providers.

XPO Logistics, with the help of an IPO in the US equity market and the Ontario Teacher's Pension Fund, has built a war chest that allows them to go after global targets, such as Norbert Dentressangle, a major European transport, forwarder and logistics company, among a whole bunch of other interesting acquisitions in the states.

CH Robinson, a leading transport broker with a strong customer base and world-class load matching technology, felt it necessary to buy their primary on-line competitor, Freightquote, which focused on moving the load broker world to a more transparent virtual marketplace.

Roadrunner has been snapping up all sorts of transport and logistics services companies in the US, further gaining scale economies and aggregating a fragmented marketplace.

And FedEx, besides its move into reverse logistics with the Genco acquisition from Greenbrier, has purchased Bongo to help companies with cross-border shipment enablement; TNT Express to give it ground capabilities in Europe to compete with UPS, and Supaswift in Africa to grow its international network in seven more countries.

Where is Private Equity Investing?

PE firms are placing their investing bets both with the logistics provider and supply chain technology spaces. And, boy, are they ever spending billions, thanks to low interest rates and a huge appetite for outsized returns by pension funds and insurance companies. But remember the three basic facts about PE investing-- private equity is control (meaning total ownership) investing; private equity can't afford to lose money on an investment; and, third, private equity generates leverage from financial engineering.

We'll just hit on a few of the more interesting strategies:

Francisco Partners, with their recent acquisition of Kewill, LeanLogistics and Foursoft is making a play in the Global Trade Management space, taking on Descartes and Warburg Pincus' GT/Nexus.

Greenbrier Equity is blending traditional TMS software (Transplace) with providers (Celtic Intermodal & SEKO Logistics) to become a complete logistics solutions provider.

Vista Equity is playing in the mobile resource management space with XRS, Roadnet and Omnitracs in their portfolio.

New Mountain Capital has completed the rollup of JDA, Manugistics, E3 and i2 enterprise supply chain software space, and is looking for additional acquisitions.

TPG has recently bought a controlling share in Transpereon, a European transportation connectivity and visibility platform.

All in all, The PE guys are looking for the best exit strategies as soon as possible with the highest return to investors. Look for a bunch of IPOs in this space over the next few years.

Where is Venture Capital Investing?

Venture capital, on the other hand, is thinking 5-10 years out when making supply chain related investments. They are betting that supply chains will become users of big data in decision making, be able to integrate data from the Internet of Things hardware, manage a myriad number of last mile delivery options in their networks and make use of drones for home delivery.

In the **IoT space**, FushionOps, for example, just raised $12 million from NEA and Sierra to roll out their end to end inventory visibility solution that will allow IoT-initiated requests to access inventory at any place in the supply chain. The CargoSense platform goes far beyond temperature monitoring and simple climate monitoring to provide complete and historical insights of how transportation providers are handling goods within the supply chain at the individual box and product level. Veniam is building the 'Internet of Moving Things', turning vehicles into Wi-Fi hotspots and offer full-stack solutions to deliver robust wireless networks for ports and container terminals.

In the supply chain **Big Data world**, CargoMetrics is collecting data about the movement of commodities by ship, and selling that data to hedge funds to monitor commodity movements globally- a very profitable business. Zebra Technology's fleet management and delivery validation technologies speed deliveries to customers, enhance transparency and ensuring optimal last-mile deliveries.

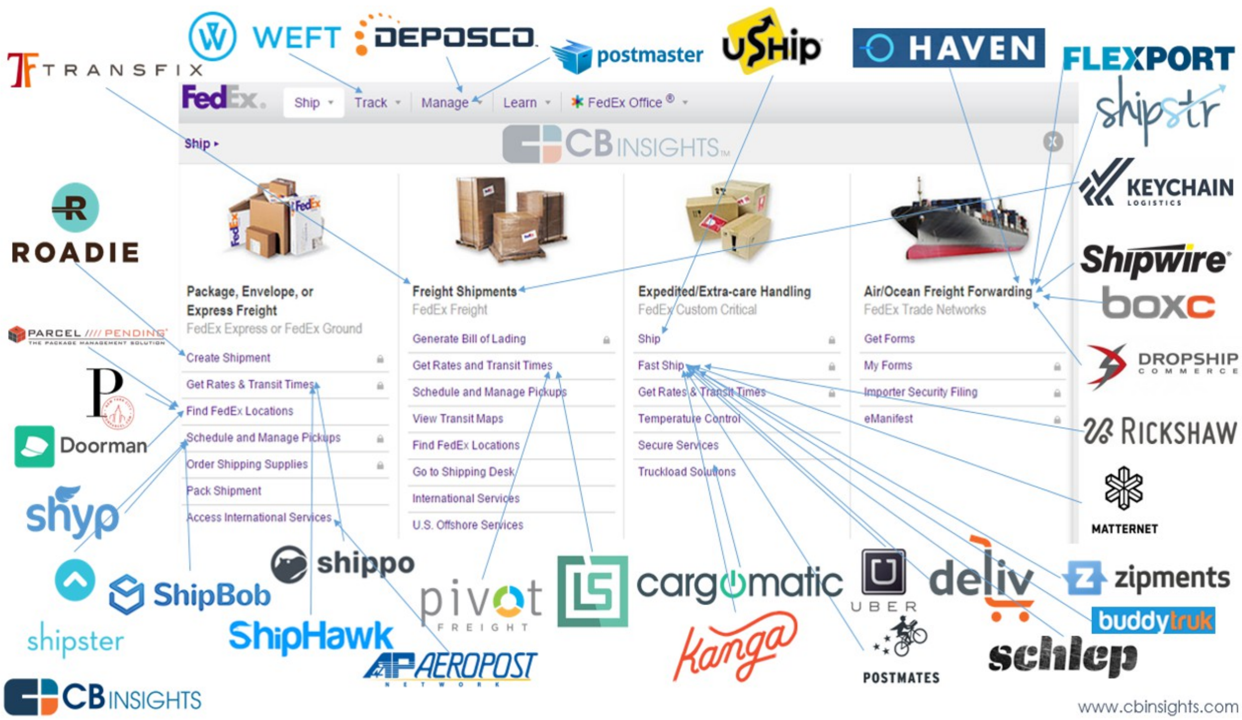
In the **Last Mile/Mobile Delivery space**, venture firms have pumped huge amounts of capital. We could spend all day on the subject, but here are a few highlights. Delivery Hero is a network of online food ordering sites with over 73,000 restaurant partners worldwide. They have raised $1.3 Billion in 11 rounds from 18 investors and made six acquisitions in the last two years. Founded in Berlin in 2011, Delivery Hero is now a worldwide network of online food ordering sites, operating in 21 countries. Just think how easy would it be to add parcels from local stores to that network…

Drones are a crazy hot investing space for venture guys now. Think recreating the global airspace management system below 1000 feet and you get an idea of the immensity of the challenges. One we are particularly interested in is Panoptes, which is building a world class anti-collision system (buildings, trees, other drones) that is drone agnostic and can be retrofitted in 5 minutes in existing drone hardware.

Finally, it's not that VCs are totally ignoring supply chain software investments—Lightspeed has invested over $75 M in Elementum, which is integrating real time data in to cloud-based supply chain management tools, Sierra Ventures & NEA have invested $12 M in FushionOps, a supply chain analytics company and Shasta has put $8M into Resilinc a supply chain risk management company. But's its chump change compared to the billions in last mile delivery, drones, robots and big data.

Unbundling FedEx: Challenges Strategics Face Going Forward

This chart, courtesy of CB Insights, says it all about how strategics need to worry about the numerous startups invading the shipment tracking, delivery, forwarding, compliance and logistics solutions space. The 35 companies that are pictured represent just a fraction of the companies that are going after the traditional last mile delivery specialists like FedEx, UPS and USPS.



As mentioned earlier, UPS and FedEx have acquired one or two of the hundreds of competitors—Bongo by FedEx and iparcel by UPS, which provides e-commerce enablement for cross-border shipments. It will be interesting to see how we manage to deal with the hundreds of new delivery companies that our customers will want to use instead of just tendering parcels to UPS or FedEx.

UPS & FedEx are desperate to hold on to the huge and highly profitable last mile delivery market. Both are considering deliveries to cars, lockbox delivery stations in local stores and following the consumer to work. As volumes grow, costs can spiral out of control with missed deliveries that eat into margins.

Why are logistics and distribution-intensive companies attractive to private equity?

Remember for our earlier discussion that many PE firms have a shorter-term focus than VC's when it comes to investment horizons. The typical PE firm wants to see solid returns on their investment in the 3-5-year period, although PE's are holding many investments in the logistics space much longer. Why is that?

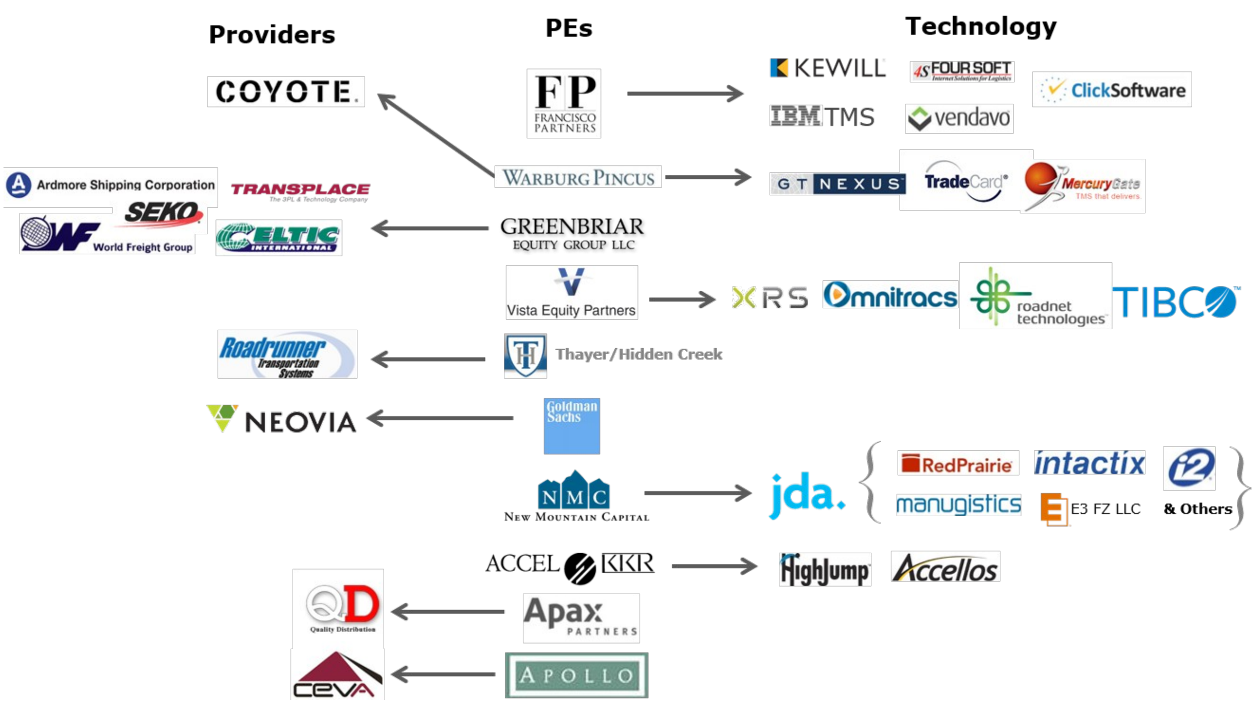
First, PE's are awash in cash, due to eager investing partners like endowments and pension funds seeking higher than average returns. Low interest rates also make it possible to double down on the equity investments by loading cheap debt onto the companies. Right now, valuations on many potential PE targets are sky high, making it difficult for the PE spreadsheet guys to justify spending the capital, given expectations for savings can't meet ROI targets. But the ready availability of cash they need to deploy lets them do more M&A, building larger firms with higher potential sale or IPO prices than before.

Why have PE firms been so interested in **logistics providers**? Logistics service providers have strong margins, asset-light operations, access to global markets, yielding solid revenue growth and profits. Adding additional complementary companies to the mix creates further scale economies and further market and vertical penetration. This is a sweet spot for PE investors and the earlier slides show the wide range of PE firms that are investing in supply chain companies and why they continue to enter the logistics service provider market.

Why are PE firms so interested in **distribution-intensive companies**? They understand that scale economies in procuring supplies and providers, coupled with network rationalization and headcount reductions can result in substantial cost reduction opportunities. We get calls all the time from PE guys wanting to know who they should target next, based on the logistics cost reduction opportunities.

What happens after the buy? Logistics is always the primary target for cost reduction in distribution-intensive companies, followed by acquisitions for market/product line growth and a drive to revive organic business.

The following graphic depicts the major supply chain investments by PE firms:



Conclusions

As the economists say, investments drive the companies of the future. Will robots, drones and autonomous vehicles become a major part of supply chain operations in the next few years? Probably not for most supply chains. But in ten years our supply chains will look nothing like we have today—they will be more technology driven, less labor intensive and more flexible to respond to global demands.

Judicious experimentation with new supply chain offering and technologies will help companies stay abreast on the revolutionary changes. Automating a few warehouses, outsourcing some e-commerce operations, using big data to better understand demand and response options are just a few of the emerging strategy tweaks that supply chain executives should begin to make so that the future does not come crashing down on their heads.

Better to be prepared than spent time catching up…