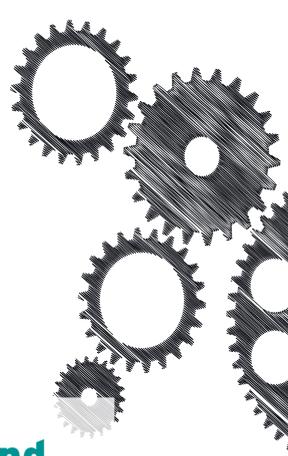
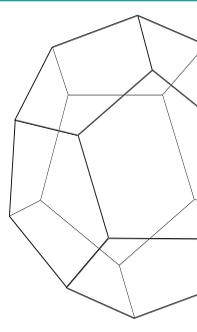
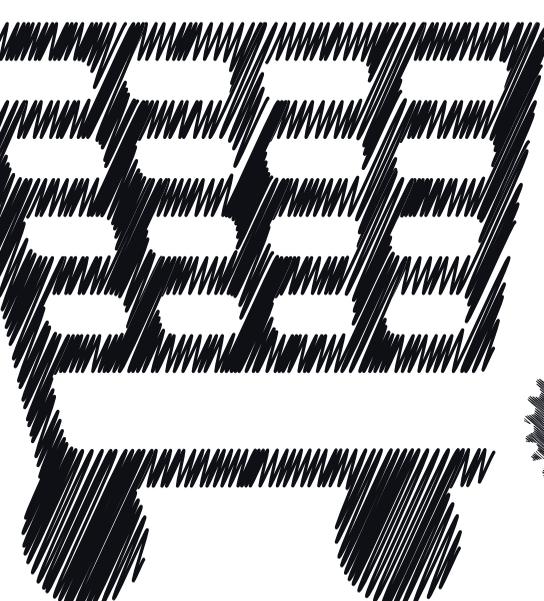
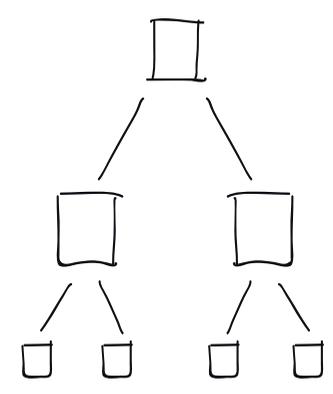
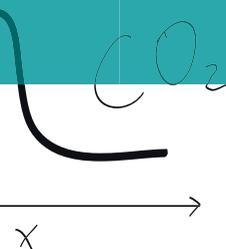
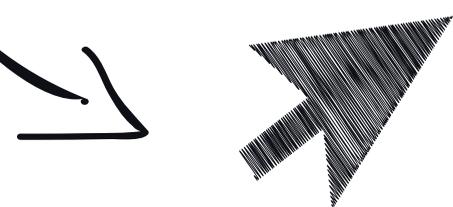


$$\sum + 3^2 \cdot y + 2 + \frac{(a+b)}{x} + \frac{N^3}{z} - y^2 = \alpha$$

SOLVING THE E-COMMERCE EQUATION



$$y = \sqrt{a^2 + \frac{x}{z}}$$



As labor constraints and capacity challenges persist, e-commerce complications multiply. Eureka! These logistics providers have it all figured out.

$$\frac{\pi}{\sqrt{2}} \cdot \frac{(x+y) - F + \frac{\pi}{AB}}{1} = x$$

$$\frac{\pi}{\sqrt{2}} \cdot \frac{(a+b)}{x} + \frac{N^3}{z} - y^2 = \alpha$$

$$\frac{\pi}{\alpha}$$

Total e-commerce sales for 2021 were estimated at \$871 billion, a jump of 14.2% from 2020, the U.S. Census reports. “E-commerce exploded,” says Megan Smith, chief executive officer with Symbia Logistics. “It has gone from being one of many retail outlets to the outlet of choice for many people.”

As online sales have jumped, e-commerce companies have tackled constraints and shortages across every leg of the supply chain, says Abhinav Chandra, managing director with the consumer retail group of Alvarez & Marsal, a professional services firm.

“The effect is not additive, but multiplicative,” he says. Those at the tail end of the process bear the brunt of the challenges. Apparel retailers, for instance, typically need to sell their wares within a few months. Shipping delays cut into that timeframe, boosting the risk the retailer will have to discount its merchandise.

At the same time, consumers’ expectations for speedy, reliable deliveries have only increased, says Steve Rosenstock, partner, consumer products industry leader with Clarkston Consulting. Even as they strive to meet expectations, many companies are navigating labor shortages, dated back-end systems, and cybersecurity risks.

OVERCOMING DELAYS

To mitigate shipment delays, e-commerce companies have several options. One is to establish more distribution centers or partner with logistics providers that offer locations near their consumers, cutting shipment times, says William Watts, managing principal, consumer markets services group with consulting firm Crowe LLP.

Another option is to “pull forward” products from distributors or vendors. That is, the e-commerce firm includes the products within its information systems and uses tools like artificial intelligence and robotics to help its

manufacturers or distributors identify items that are in demand and need to move quickly.

The competition for the availability of products has been strong, Watts says, in part because many e-commerce companies focus on the technology they use to interact with customers, and then contract with others to manufacture the products they sell. That leaves e-commerce firms competing with others to access products.

BUILDING RELATIONSHIPS

One way to boost access is by building relationships with multiple suppliers, Megan Smith notes. That provides a safeguard if an option disappears.

As companies source and warehouse products from more vendors, the complexity of their supply chain increases. Logistics providers can help companies manage this complexity.

And just as they benefit by building relationships with suppliers, e-commerce firms can gain a competitive advantage by developing strong partnerships with their logistics providers, Smith says.

In e-commerce transactions, actions taken in the warehouse or during transportation directly impact the customer experience. If a package is delayed while on a delivery truck, the e-commerce company needs to communicate this to the customer.

Now that the red-hot growth in e-commerce seen early in the pandemic has slowed, many shippers are rationalizing their portfolio of carriers, says Dean Mills, vice president, sales and marketing, with TForce Logistics. They recognize they don’t need 20-plus

carriers, yet many also don’t want to restrict themselves to one or two carriers.

“They’re reaching a middle ground and partnering with a manageable group of reliable, cost-effective carriers,” he says.

AUTOMATION ADDS UP

Along with material and transportation constraints, many e-commerce companies are battling worker shortages, prompting greater interest in automation. Before automating, however, several steps are key.

A starting point is ensuring the company’s warehouse, inventory, order, and transportation management systems are up to date. The company then can optimize the systems it already owns, and more easily integrate with advanced systems, Chandra says.

A second step is to verify the accuracy of the inventory records. Introducing automation to error-riddled records can often lead to more errors. For instance, if the system believes a product is out of stock when actually there is some on hand, a company will likely lose sales it otherwise could have captured.

Similarly, when integrating with a logistics provider’s business systems, business rules and processes should be incorporated early and accurately, Smith says.

She provides an example: A business has two products in five colors, for 10 stock-keeping units (SKUs). After the integration, it becomes clear the two products are different sizes. Adding this information, while necessary, can upend “the ecosystem” already incorporated within the business rules, creating additional work and potential delays.

While allowing vendors to access their information systems can streamline processes, e-commerce companies also need to safeguard these systems and the information within them. Among other steps, this requires evaluating the cybersecurity protocols their vendors have implemented, Watts says.

The evolving nature of e-commerce means the challenges also continue to evolve. Return logistics has become a

SOLVING THE E-COMMERCE EQUATION

“hot topic,” Mills says. Companies are trying different ways to manage returns so they can keep costs low for consumers, while quickly returning products to the marketplace.

PREPARING FOR THE FUTURE

Mobile devices, already a big player in consumer purchases, promise to take on a larger role in business-to-business e-commerce transactions, Watts predicts. Businesses need to prepare for this shift.

With more e-commerce companies accepting cryptocurrency payments from their customers, it's likely a matter of time until they pay their vendors with cryptocurrency, Watts says. To do that, they'll need to determine, among other issues, whether their bank will accept them, and how they'll protect this new asset.

Automation will become even more prevalent, predicts Tim Smith, chief technology officer with MagicLogic, a provider of load planning solutions. For instance, autonomous mobile robots (AMRs), guided by software, will increasingly free employees from manually picking and bringing items to pallets.

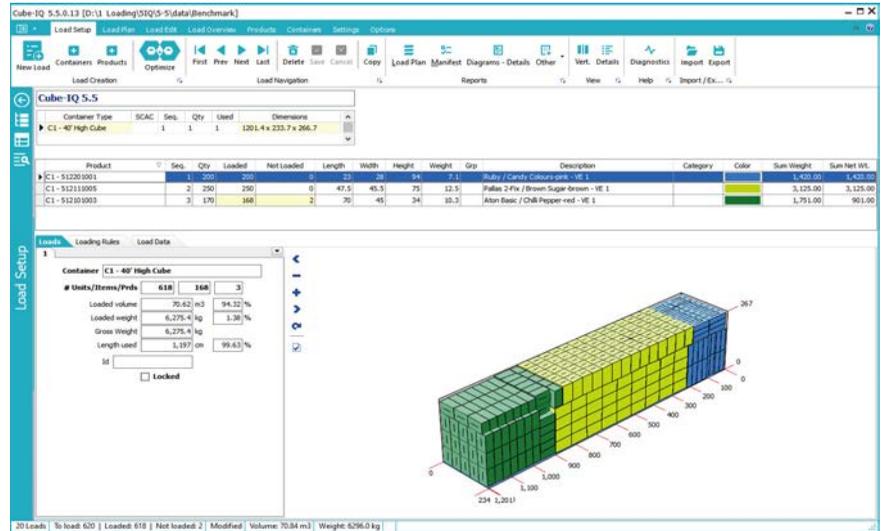
“Using AMRs is becoming more important, especially given the current staffing problems faced by many companies,” he adds.

E-commerce firms need to remain vigilant and agile and leverage data-driven solutions that can inform decision-making, while keeping their customers front and center. “The companies that are finding the greatest success are the ones prioritizing the consumer experience,” Rosenstock says.

A solid supply chain infrastructure, along with partnerships that can support a company's growth, will be key in tackling these challenges while building an e-commerce business that can continue to thrive, says Smith of Symbia.

GAINING EFFICIENCIES THROUGH LOAD PLANNING

MagicLogic has specialized in load planning for more than 25 years, and 50 of the largest 100 companies in the world use its solution. “Our math and



MagicLogic, a provider of load planning software, focuses on three essential functions: cartonization (loading small parcels for business-to-consumer purchases), palletization (arranging products onto a pallet), and placing boxes onto a truck or shipping container.

algorithms have transformed load planning,” Tim Smith says.

The company developed its software in-house and boasts more than two decades of research and development focused on meeting one goal: providing the most powerful and capable load planning software possible. Its versatile, powerful algorithms are designed to achieve optimal results while working within its clients' complex business rules.

Clients benefit in several ways. They can craft more efficient load plans, while typically spending about one-third or less of the time required to plan loads manually.

Load planning generally encompasses three functions:

- Cartonization, or loading the many small parcels that make up most business-to-consumer purchases.
- Palletization, or moving many different products onto a pallet, is considerably more complex. It is essential to ensure the resulting build is stable and products protected, and many supply chain organizations are testing robots for use in this role.
- Placing multiple boxes onto a truck or shipping container, often to move long distances.

MagicLogic focuses on all three. Ensuring items are loaded correctly and safely is key, and MagicLogic provides fully customizable loading rules,

no matter how complex. These include complying with Hazmat and Li-ion, and axle weight limits, which is crucial for avoiding costly fines.

For example, MagicLogic provides efficient load planning solutions for organizations moving medicines that need to remain upright, temperature-controlled, and correctly labeled. “This is where the software tends to shine because the multitude of constraints becomes hard for any one person to keep in mind,” Smith says.

COUNTING ON CUSTOMIZATION

Meeting complex loading rules has become particularly important given many warehouse operators' labor constraints. Often, MagicLogic software bests the ability of even the most experienced warehouse employees to develop efficient load plans.

The MagicLogic software suite consists of three primary applications:

Cube-IQ is an interactive load planning solution for desktop workstations.

Cube-IQ-Web is geared for use in browsers, on tablets and phones.

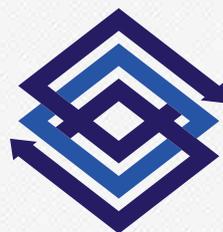
BlackBox is a scalable, rapid plug-in or service for high-speed cartonization and complex, mixed palletization from within a company's ERP or warehouse management system.

Because the MagicLogic source code

Let's Supply Change



- ✓ Smart Integrations
- ✓ Personalized Service
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is developed in-house, the team can customize it without bringing in third parties or adding software or licenses. “We can quickly adapt the software or incorporate new rules,” MagicLogic’s Smith says.

Another distinguishing attribute is the ease with which MagicLogic integrates with other systems—a key feature in a niche solution. “It’s because we’re designed in a modular format,” Smith says. And because MagicLogic has established partnerships with many companies, its solution can work effectively with most warehouse management or other solutions.

For example, MagicLogic recently worked with a pharmaceutical company that needed to boost the efficiency and effectiveness of its small parcel operation. Too often, its own rules that were supposed to govern product transportation, such as using temperature-control packaging for specific items, were not followed.

In addition, the company needed an efficient way to experiment with different loading patterns to identify the optimal solution when sending high-value items overseas.

Using MagicLogic’s software lets the client simulate different loading patterns.

Within seconds, employees can visualize how a load changes if they add, say, another 10 pieces of a specific product. By introducing MagicLogic’s software, the company is saving about \$250,000 annually due to greater efficiency and reduced product damage.

SUPPORTING NIMBLE E-COMMERCE OPERATIONS

Megan Smith and her father, Jim Smith, Symbia’s founder, saw early on the significant role e-commerce fulfillment would assume within the logistics sector, and the ways in which supply chains would change, so goods quickly moved from point-of-order straight to consumers.

To build a company that would help clients thrive in this world, they assembled a team of expert logisticians and invested in the technology needed to provide the competitive edge e-commerce companies require.

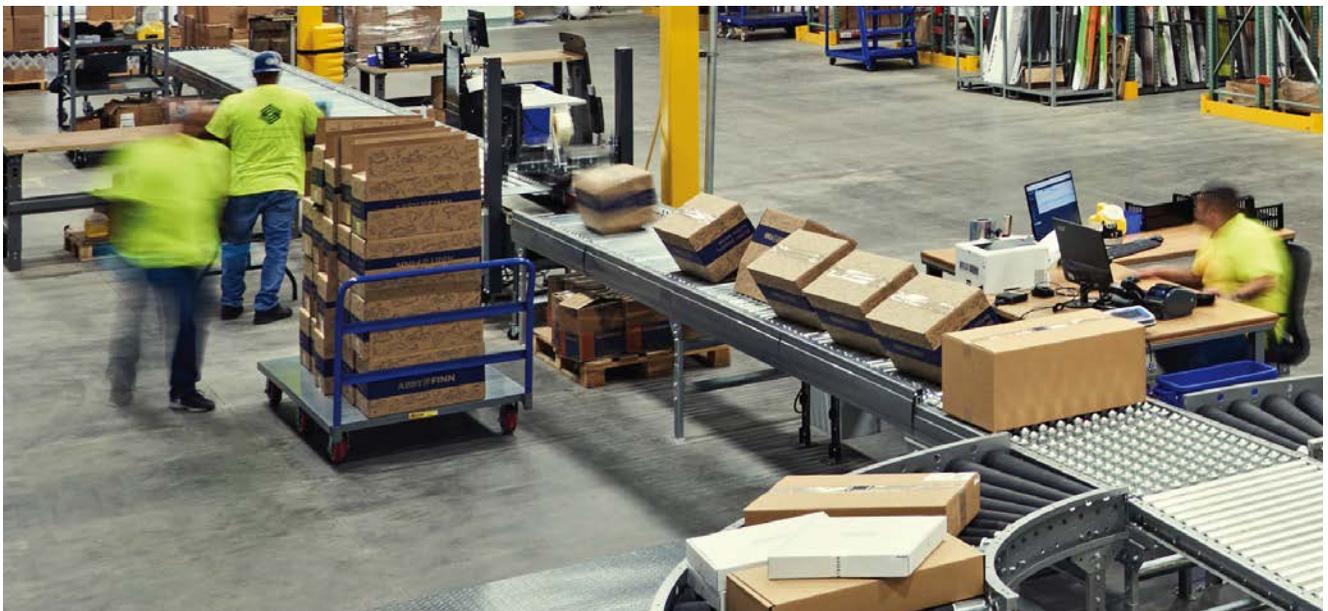
Symbia’s leadership team boasts more than 150 years of combined supply chain and information technology experience across a range of industries. Its services include order fulfillment, pick and pack, inventory management, logistics, Amazon fulfillment, dedicated warehousing, and pallet management.

Smith’s pioneering leadership also helps distinguish Symbia, one of a handful of logistics firms led by a female. “I thought it would be more common by now,” says Smith, who holds a masters in logistics, materials, and supply chain management from Michigan State University.

With the recent addition of a fulfillment center in Bolingbrook, Illinois, Symbia now operates 10 fulfillment centers across North America, and can quickly reach major population centers.

The new facility showcases the “mega warehouse technology” that highlights the company’s digital-first approach to supply chain management. Secured fiber technology improves internet connections, boosting visibility, while Symbia’s advanced warehouse management system consolidates information from multiple endpoints, providing clients with a comprehensive view of their supply chains.

The system integrates with all major e-commerce platforms, so orders can be filled and shipped in minutes. Robust reporting allows clients to monitor orders and effectively manage their inventory. The technology integrates tablets and wearables, so data can be updated from anywhere on the warehouse floor,



Operating 10 fulfillment centers across North America, Symbia Logistics provides order fulfillment, pick and pack, inventory management, logistics, Amazon fulfillment, dedicated warehousing, and pallet management services.

ECOMMERCE DELIVERY REIMAGINED



- » ORDER VISIBILITY
- » HOME DELIVERY SOLUTIONS
- » SAME-DAY
- » ANALYTICS
- » DOCK TO DOCK
- » COMPETITIVE RATES
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providing customers with up-to-the-minute shipment information. “These digital-first operations demonstrate our company’s versatility and leading-edge strategy,” Smith says.

Symbia has found a niche handling odd-shaped items, like furniture and outdoor equipment. It also provides fulfillment for many companies in the CBD industry. “Given our location, we’ve turned these niches into strategic advantages,” Smith says.

Symbia is committed to sustainable operations and was an *Inbound Logistics* Green Supply Chain Partner for 2021. A first step was installing energy-efficient LED lighting and embarking on a massive recycling initiative. In 2020, the company recycled enough metal to build four jumbo jets, along with more than 400 tons of cardboard, among other materials.

Every six months, Symbia purchases 10 trees for each of its clients, or about 3,000 trees annually. In addition to the benefit to the environment, these initiatives can save money.

While Symbia hasn’t been immune to the challenges facing supply chain organizations, its emphasis on an inclusive, equitable hiring process attracts many candidates who are nimble and interested in learning new skills. Cross-training prepares many employees to step into new positions. This ensures sustained, quality customer service.

While many logistics firms consolidate, Symbia plans to remain family-owned and independent. “People bust down our door daily, but we’ve held strong,” Smith says. “Our independence allows Symbia to remain flexible and able to invest in its employees and clients.”

ACCELERATING CLICK-TO-DELIVERY SPEED

TForce Logistics, an asset-light final-mile logistics and transportation provider, works with many national carriers to offer a cost-effective solution.

“We offer a final-mile solution that can expand quickly and less expensively, particularly in areas of high population density,” Mills says.



“WE OFFER A FINAL-MILE SOLUTION THAT CAN EXPAND QUICKLY AND LESS EXPENSIVELY, PARTICULARLY IN AREAS OF HIGH POPULATION DENSITY.”

**-DEAN MILLS
VICE PRESIDENT, SALES AND MARKETING
TFORCE LOGISTICS**

While some regional final-mile companies operate only in a specific region, TForce’s distribution network covers many population centers across North America. In Canada, TForce’s network spans from Newfoundland to British Columbia.

In the United States, TForce built out its network several years ago, and now covers the most populous areas of the United States. While the TForce network spans much of the country, it has a particularly robust presence in the north-eastern and southeastern states, as well as in California and Texas.

As important as the network is the technology that connects drivers to TForce, Mills says. Because the company’s business model is asset-light, and isn’t tied to specific vehicles or drivers, it’s generally more cost effective than other options, he adds.

Advanced logistics tools enable TForce to identify the most cost-effective solution for each business’s needs. All its drivers are equipped with a TForce Logistics’ mobile app. This sequences the routing for each driver, so deliveries are made as efficiently as possible.

TForce provides its clients a range of cost-effective delivery and pricing options, including same-day and next-day delivery. TForce’s flexible solutions are also affordable, eliminating cost barriers for any business seeking same-day or next-day delivery options so they can compete with larger e-commerce entities. Its drivers can pick up and deliver from warehouses or stores or consolidate deliveries at TForce’s docks.

The TForce model also allows for flexibility, and in many cases, next-day

delivery. For instance, TForce drivers might pick up packages at a retailer’s fulfillment center starting at 8 a.m. and extending until 9 p.m. that night.

Because the cut-off time for capturing packages tends to be fairly late, most packages reach their destinations the next day. In contrast, some other carriers have earlier cut-off times, which shifts more packages to two-day delivery.

Once a package leaves an e-commerce company’s site, it moves to TForce’s facility, where it is sorted and co-mingled with other packages heading to the same general vicinity. This process helps ensure efficient deliveries and keeps costs down.

DELIVERING EFFICIENCY

From there, the TForce Logistics mobile app maps each delivery person’s orders to create an efficient route. Indeed, TForce’s on-time delivery rate is in the high 90s, Mills says. When drivers make a delivery, they place the package in a secure location and photograph it.

An online order tracker provides enhanced visibility to shipments as they travel to consumers, who are able to monitor their orders while they’re in transit to see when their package will arrive. The app provides minute-by-minute status updates, push notifications, and location tracking.

“Everyone is striving to shorten the ‘click-to-delivery speed’ or the time from when an order is placed until it’s delivered,” Mills says. “We can help most customers achieve this.” As TForce meets this need for its clients, it will continue to grow. “There’s no end in sight,” Mills adds. ■



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