# The E-commerce Effect: The Modern Supply Chain Disruptor

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# In Brief

E-commerce has become the biggest supply chain disruptor in the 21st century. Whether your organization sells, buys, manufactures or delivers physical products, e-commerce has dramatically changed the way you do business in the past 25 years. And now, as we reach what looks like peak e-commerce, the disruption is intensifying. Many factors are contributing to online selling's powerful impact, from increased computing power, including artificial intelligence, to robotics, the ubiquity of smartphones, the growing purchasing power of digital natives who prefer to shop online, and the overwhelming domination of one particular retailer. As analysts look at e-commerce today, they invariably point to the influence that Amazon has on the marketplace. When they talk about the "Amazon effect"[1], they mean the influence that the online retailer has not only on competitors but also the global supply chain and all of its parts. Thanks to the seamless, some say "frictionless"[2], retail experience Amazon delivers, consumers have become accustomed to a new level of speed and customer service. Same-day delivery in major centers, combined with a globally sourced array of products, competitive prices, and comprehensive returns policies together have raised the bar for retailers the world over. This immediacy, along with Amazon's accuracy, has trickled down from the retail world into the manufacturing supply chain as well. Retailers are increasingly pressuring their suppliers to provide delivery right to the final customer, forcing them to become omnichannel distributors. It's a complex and extremely fast-moving environment and supply chains have not necessarily kept up. Karl Siebrecht, CEO of Flexe said in a post on Supply Chain 24/7: "Once valued for its linearity and consistency, the supply chain needs to do much more today. It's overly aligned with the original retail format it was built to support, and misaligned with the new retail formats that continue to be invented. Decentralized and increasing consumer demands are forcing the supply chain to become nimbler – smarter."[3] This is posing major challenges for supply chain operations managers and planners.

Business-as-usual no longer exists; adaptability and flexibility are now the baseline norms for any organization that wants to succeed in an e-commerce world.

In this paper, we take a closer look at how this new e-commerce world is affecting different segments of the supply chain.

We examine retail, wholesale, manufacturing, parcel delivery, and reverse logistics and answer two fundamental questions: How are these areas affected? And, what can they do to adapt and prosper?

# 1.
# The new
# retail reality

How does the 'Amazon effect' play out for traditional 'bricks and mortar' retailers? Their old-school supply chain was relatively simple – product was delivered either from their own DC or direct from suppliers to retail locations, where customers would come to browse and buy items directly off the store shelf.

But with competition from online retailers, the bricks and mortar stores are now facing a dilemma. If they don't engage in e-commerce they will lose business to online stores that promise fast home delivery and returns. If they do go down the e-commerce route, they have to re-think their supply chain. Customers now may have to be served in multiple ways: as walk-in traffic at the retail store, via online orders that are delivered to home, or via online orders that are picked up in store. And how are orders fulfilled? Are they picked in the stores and mailed out? Are they picked at the DC and mailed out? Are in-store pickup orders picked in store, or at the DC, and shipped to the store? What about returns? Are they managed in-house, by a third party, at stores, or in the DC? Suddenly, the level of complexity has multiplied, many times.

## Choosing a solution

Traditional retailers faced with the dilemma of e-commerce have choices, in keeping with the complexity of the situation. And they all involve a level of pain. Inaction is one option that some retailers fall into, often thanks to the cost of keeping up. But to be left behind is to fail and retailers that choose inertia are failing. In the United States, more than 8,000 retail locations were shut down in 2017[4], and more than 20 retail companies filed for bankruptcy[5].

The alternative is to invest in the supply chain and adopt either a pure-play e-commerce model; or some kind of hybrid that will allow customers to order online and have products delivered to their homes, or picked and packed for in-store pickup. To accomplish this will require an investment in technology for most retailers. Depending on the company size, it could be as simple as upgrading to a new solution for inventory management, or as expensive and complex as adding a purpose-built DC to manage e-commerce fulfillment.

Automated DCs are becoming a more common choice for e-commerce fulfillment. This massive commitment to technology delivers high throughput with typically lower costs for labor and sometimes utilities. To make these facilities work at peak efficiency requires additional technology to automate tasks such as **appointment scheduling** in order to guarantee precise unloading times, door allocations, load priorities and commitments to vendors. (**Click here** to read our case study on how a European grocery chain optimized its automation using C3's dock scheduling system.) Offloading these tasks from humans to a system takes away uncertainty, eliminates wasted time reorganizing schedules and speeds flow to and from the docks.

It doesn't have to require massive investments in automation or new facilities to take advantage of the information and time savings these technologies can offer. But when these large investments are made, dock scheduling and YMS will help speed up the **ROI** and help the business take full advantage of the investment and ensure the lasting success of their digital sales operations.

Retailers facing the 'Amazon effect' really do face a squeeze. Their environment, competition, customers and suppliers are all evolving, almost by the minute. If they chose to compete, they need to take a hard look at how they use technology and make sure that they are deploying the best solutions that will help them deliver on time and 100 percent accurately. One sure way to do that is by gaining full awareness of how a facility interfaces with inbound and outbound product. Without that knowledge, the risk of failing to keep up with the competition grows.
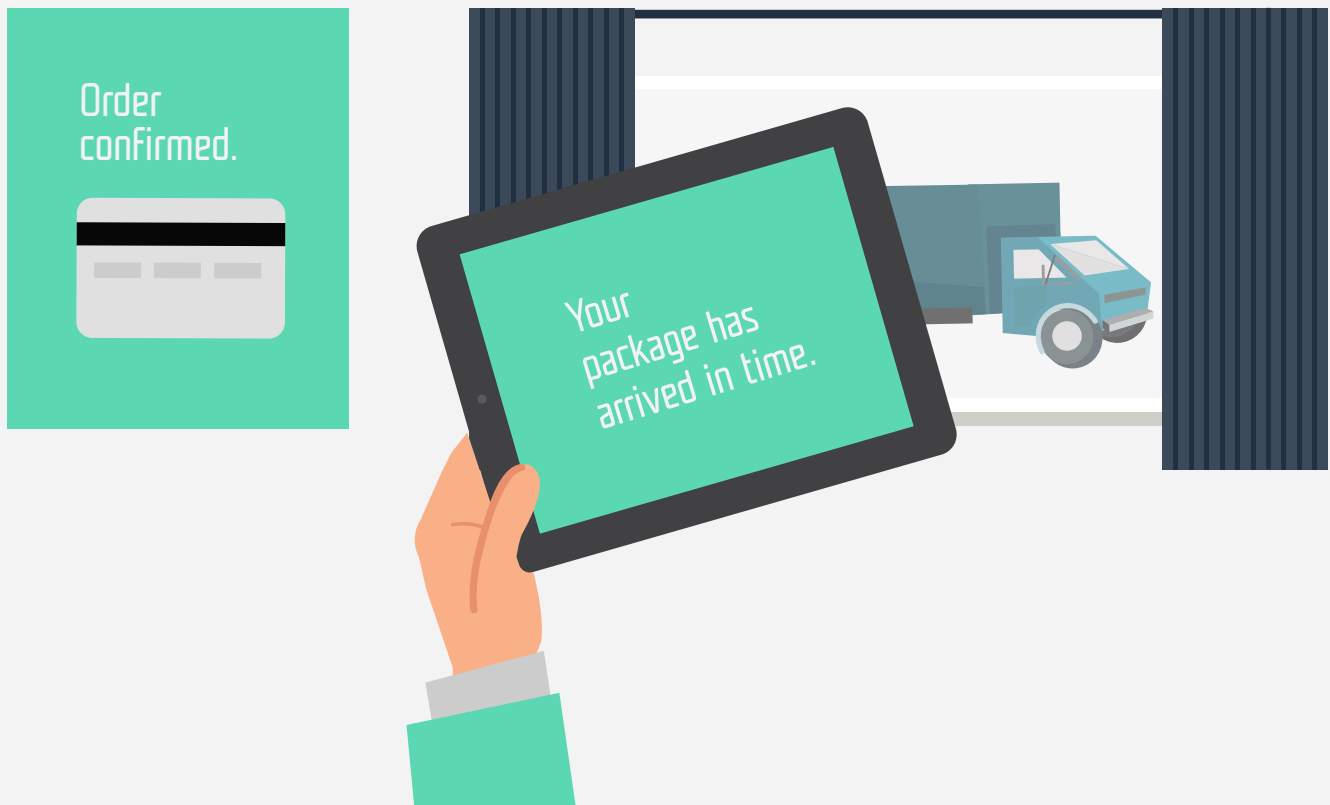
Using a yard management system (YMS) can keep track of what's where; especially for a large retailer with thousands of trailers on the yard. A YMS can integrate the trailer-held inventory into the WMS and automatically schedule the yard-held trailers to the dock for unloading when levels fall inside the DC.

**If operations staff have insight into what is coming and going from a DC's dock doors and when, companies can gain velocity, reduce inventory levels and better manage staffing requirements. Adding dock scheduling capability and marrying it with yard management can provide the low hanging fruit of e-commerce success.**

# Electronic commerce

E-commerce is **electronic** commerce; it's simply logical to manage it using information systems and by digitizing existing paper processes. Customized rules for business parameters can ensure the smooth operations of inbound and outbound operations. Getting the information perfect–by sharing data, not paper–streamlines and eliminates wasteful use of human resources and time. These solutions can also help solve the problem of fluctuating inventory levels and rapidly changing product assortments in the DC. With many retailers resorting to holding the product in trailers on their yards, it is becoming increasingly difficult for operators to manage this inventory.

Whether big or small, all retailers that choose to compete in the e-commerce space share common needs in their back-end operations: visibility and speed. To keep the supply chain moving and ensure that orders are being fulfilled correctly supply chain managers and operators need to know where the product is and when it will be arriving. This is as true at the origin's dock door as it is at the customer's front door.

Online customers expect their purchases will be delivered as promised, and that they will be kept informed if an exception occurs. Achieving this requires complete end-to-end visibility. But if the receiving operation is not organized, and using manual processes causes trucks to wait for docks to unload, costs will mount as companies pay for not only their own staff's inefficient use of time but also for driver detention and container demurrage. As well, when documentation is not in order, with POs missing and so on, fulfillment systems cannot operate at peak efficiency.

Order confirmed.

Your package has arrived in time.

# 2.
# Managing in manufacturing

Manufacturers are also getting caught up in the e-commerce wave. Business-to-business commerce is declining in some areas because purveyors of big brands are coming to understand they can control the customer experience – and satisfaction – if they offer direct sales.

Nike, for example, plans to grow its Direct-to-Consumer (DTC) business by 250 percent over the next five years[6]. While consumer brand manufacturers like Nike have been playing the DTC game for years, many companies that make products for true business-to-business (B2B) customers are playing catch up. Shopify correctly points out that B2B e-commerce is "not a luxury"– it's a necessity[7]. In fact, B2B e-commerce outpaced consumer online sales at US$7.7 trillion in 2017[8].

For the manufacturer trying to sell widgets, this can mean a dramatically different way of doing business. B2B buyers are increasingly younger and more likely to be digital natives and are bringing their own consumer habits and preferences to work with them[9]. This means in practical terms that they want self-service, mobile-friendly interfaces, customization, and dynamic pricing[10]. And it goes without saying that they want what they order to arrive on time and complete.

No more can business' operate with sales reps phoning orders in, overpromising and wreaking havoc with the production line. This old-school approach will still work with some customers and in some industries, but if Amazon is encroaching on familiar turf, it's time to take heed. Order

fulfillment processes will likely need an overhaul to accommodate both e-commerce and traditional models. And, once an e-commerce channel opens up, the business can bet they'll also be expected to sell directly to the consumer to some extent. How do you manage these typically small, orders alongside the bulk orders from retailers and wholesale buyers?

## A systems approach

Manufacturers need to adopt a whole new set of practices to adapt to omnichannel e-commerce. Attempting to manage with the wrong systems, for example using B2C software for B2B e-commerce, as many companies did at the beginning of the B2B online sales boom, was a recipe for expensive challenges around customization[11].

**However, integrating e-commerce functions with back-end supply chain software systems and customer relations software will help to provide the end-to-end visibility that is needed to be successful at online selling.**

The ability to integrate systems will be key to

winning at B2B online sales, said Jary Carter, co-founder of CRM supplier, Oro Inc., in a Forbes op-ed[12].

Ultimately, it comes down to ensuring profitable delivery, something manufacturers can achieve by improving forecasting and optimizing inventory, optimizing fulfillment, and compressing cycle times and implementing a fully digital supply chain. Being able to accomplish these three objectives requires the integration of inventory control and forecasting, order management, and other systems. It means being able to nimbly redirect inventory, distribute orders so they are shipped from the most logical location and use the most economical shipping method[13]. In short, **logistics processes need to step up their game.**

# Planning is everything

Integral to the success of these initiatives is the ability to plan for and accommodate the arrival and departure of goods. With shorter lead times it has become even more important to remove impediments to communications between internal departments, such as manual data entries into multiple systems, the filing of paper documents and even back-and-forth chatter on the radio about dock and yard activities.
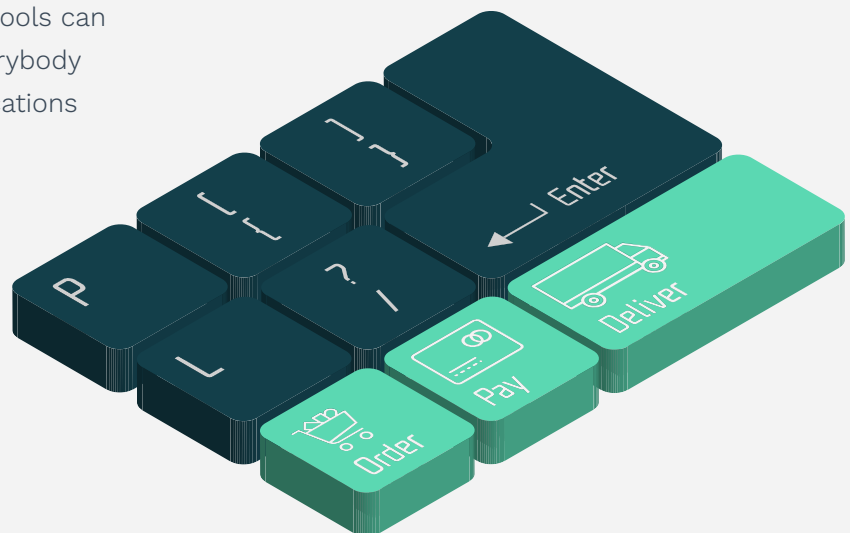
Using scheduling and yard management tools can eliminate these blockages. With YMS, everybody has the same, real-time view of trailer locations

and their contents. For example, at **C3 Solutions** we worked with a battery manufacturer that had a particularly complex operation with multiple sites, various crews of drivers and both private and outside carriers coming and going.  All these variables created a variety of processes and potential exceptions that created a lot of communications and paperwork to manage.

Implementing the **C3 Yard** system allowed them to manage all this with greater efficiency while delivering better customer service. (Read our case study **here**.)

If logistics processes are going to become a strategic differentiator, the organization must ensure they are optimized at every possible node. Integrating a dock scheduling and yard management solution to ensure goods are not languishing on a truck in the yard when they are urgently needed elsewhere will help keep all the balls in the air to ensure that this newly complex distribution system works.

Having a system where all the pieces talk to each other will deliver dividends in reduced inventory and shipping costs, more accurate fulfillment, and ultimately will deliver usable data that can be recirculated to improve processes even more.

# 3.
# Wholesale strategy

For companies in the wholesale distribution niche, the advent of e-commerce can be a double-edged sword. When a manufacturer decides to pursue its own omnichannel fulfillment strategy, the wholesaler/distributor may find itself losing a client.

If the manufacturer can realize the same or better sales through its own channels and is able to leverage technology to build a more retail-like strategy, then the wholesale operation has lost its utility.

But, many manufacturers are not abandoning sales through distributors, and for good reason. Developing an omnichannel fulfillment strategy is not quite as easy as setting up an online ordering system, so many manufacturers are opting to take the orders through their own site but have them fulfilled through a distributor. In another model the manufacturer dropships for the distributor, using order data from the distributor's site[14].

For their part, distributors also have the option, in the e-commerce world, to sell both to retail customers and the retailers themselves. And, according to Shopify research, customers of wholesalers – small businesses, franchisees, and B2C outlets – "prefer a simplified ordering experience", which means it can be made much more streamlined than a strictly consumer-facing e-tail experience[15]. Recent research by Accenture shows that 86 percent of U.S.-based B2B companies with annual revenues of over US$500 million already have e-commerce solutions in place. **That means if you're not already in the game, it's catch-up time.**

## Clear communications

Whether the strategy is to develop in-house e-commerce capabilities or work with manufacturers to leverage each other's assets and supply chain strengths, wholesale and distribution operations face the same imperatives around visibility and speed to the customer as any other omnichannel supplier. And in a business, like wholesaling, that has long depended on relationships, communications are key to success. With technologies in play, the only way sales teams and point-of-sale systems can know if a product is available from suppliers is by establishing an electronic link that is strong and sophisticated enough to deliver real-time visibility into the transportation leg of the logistics chain. EDI alone does not provide sufficient visibility to let the inventory systems know where the product is and when it will arrive. recipe for expensive challenges around customization[16].

Implementing and using available technology to streamline operations – like **using YMS** to manage the locations of goods in the yard and scheduling appointments for trucks at the dock doors, as well as using real-time communications to ensure all parties are informed – conveys a strategic advantage that will help ensure a profitable

partnership between wholesaler and supplier. Being able to share visibility data with key business partners results in a stronger relationship and a better customer experience, both of which translate into a more robust bottom line.

# 4.
# Parcel delivery

The companies that provide last-mile delivery services to the e-commerce world are masters of supply chain efficiency – most of the time. Parcel delivery is intensely competitive, expensive and error-prone.

When it's done well customers are happy because they've received the service level promised by the online retailer. But when it goes wrong, everybody has mud on their face – the retailer looks bad, and the delivery service looks incompetent.

The pressure to succeed is enormous, and the volume of parcels is mind-boggling. In 2017, 8.95 billion parcels were delivered globally at an average cost of US$6.4 per cubic meter[16]. Amazon alone shipped more than five billion items worldwide, blowing its 2016 one billion record out of the water[17]. Largely thanks to Amazon, two-thirds of retailers expect their last-mile partners to offer next day delivery[18]. In order to accomplish this, delivery services must leverage the latest in technology for receiving, sorting, routing and tracking.

## Conquering the last mile

The last mile is widely considered a massive logistics challenge and is potentially the weak link that may spell trouble as e-commerce continues its exponential growth[19]. As solutions like drones, autonomous vehicles, pick-up in store and crowd-sourced deliveries are all under development, existing delivery firms can work with the transportation and distribution assets they currently own by

by implementing better technological oversight systems. But they can be hampered when different parts of the business don't talk to each other.
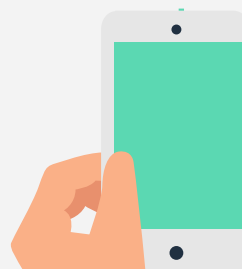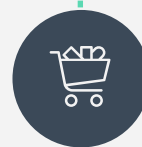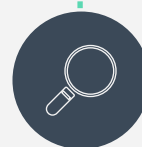
Canada Post offers a good example in its recent past, when it invested billions in modernization[20], a large portion of which went to automated sorting technology to improve the flow through its distribution centers. Unfortunately, the plan failed to take into account the growing traffic in its truck yards, and the time spent trying to locate trailers effectively canceled out the gains made from the fancy new sortation technology. To the credit of Canada Post, they have subsequently addressed these issues by implementing a best of breed yard management solution throughout their enterprise.

This is an important piece of the puzzle for parcel delivery because the investment in technology is so great that it must be made to work to its full capacity.

One solution is to introduce a control tower system, which gives visibility into operations across departments, over multiple sites and with many thousands of pieces of equipment. C3 Solutions integrated its YMS into such a

system for a large UK parcel delivery company (read our case study **here**). The result was full visibility into a fleet with more than 600 tractors and 1,500 trailers, and the ability to almost eliminate idle time for trailers in the company's four facilities' yards. Until alternative solutions are found for last-mile delivery, the parcel delivery companies will continue to face the challenge of operating at peak speed and efficiency. Achieving peak speed means ensuring that trailers are processed without delays. This means they need to be able to know where trailers are for drivers to pick them up without wasting time searching. It means they need to be able to see when a yard is reaching capacity and act to prevent bottlenecks that slow operations down.

In the parcel delivery business, the ability to leverage **technology like YMS** outside the facility in conjunction with the most advanced sortation technologies inside the facility is a key competitive advantage that is critical for success in the e-commerce marketplace.

# 5.
# Reverse logistics

Until e-commerce came along, returns or reverse logistics was usually an afterthought. But now, with online shoppers returning about 13 percent of purchases, and almost 40 percent of e-commerce customers believing it's important to have free return shipping when ordering something online, [21] retailers need a returns strategy that works.

And it's set to get harder. Up to 25 percent of fashion retailers around the world will be implementing try-before-you-buy (TBYB) services by 2019, where customers can return items after a 30-day trial period. Recent research by BrightPearl shows this trend may result in a quadrupling of return costs for US retailers[22]. In 2017, U.S. return delivery costs amounted to US$381 billion and are expected to reach US$550 billion by 2020[23].

Once items come back, retailers then have to figure out what to do with them. Returned inventory is not welcome back on the docks; where it sits until staff figures out what to do with it. "It creates a burden on your day to day warehousing function," said Eian Campbell, director of operations at Danby products[24]. And putting undamaged items back on the shelf for resale costs twice as much as selling them in the first place[25].

According to the BrightPearl study, 44 percent of retailers say their margins are "strongly impacted" by handling returns, while 66 percent are not using technology to manage them.

## An argument for technology

A majority of online retailers recognize that it makes financial sense to outsource returns[26],

but 54 percent in a recent survey claim they want to keep it in-house to maintain control[27]. Whether your company decides to do it yourself, or outsource, you cannot simply put the outbound process in reverse and expect it to work. There are so many variables introduced in the retail returns process, from the unpredictable way items are packaged by customers that affects freight rates (thanks to cube dimensions), and can even damage goods that were fine before they were sent back, to the need to examine and expertly assess every single item to determine its appropriate stream – restock, discount or trash.

Managing all these processes is a complex task, and is usually the responsibility of many different departments – transportation, inventory control, purchasing, AR, etc. So whether it's in-house or done by a third-party supplier, the returns process needs to rely on strong interdepartmental communications and technological interface. That's where systems such as the **control tower used by the UK parcel delivery firm** are vital. Real-time data sharing, electronic documents, and flow control are essential to managing the variables and complexity in returns. Keeping track of returns and the value they represent for the supply chain is a critical operational concern that can be solved through the use of appropriate technologies.

# Conclusion

## Will your company thrive in spite of the 'Amazon effect'?

E-commerce presents real challenges for each of the industry sectors we explore here. From the increasing cost of returns to the need for speed, accuracy, and the 'frictionless' interface, any business that takes the plunge into online selling will have to figure out its best strategy for success. There are some common themes, however, that play across every industry:

- ★ Real-time communications among departments are critical to e-commerce success.

- ★ Digitization of documentation is a key success factor in online retail distribution.

- ★ Major investments in sortation or picking automation need to be optimized through the use of technologies that streamline operations both inside and outside the distribution facility.

Success in online sales does not come without effort. Constant innovation is powering competition and forcing companies to react swiftly or get left behind. This disruption is not likely to subside any time soon, making it even more important to consider options such as the ones we have explored here to help plan your organization's evolution and adaptation in the e-commerce world.
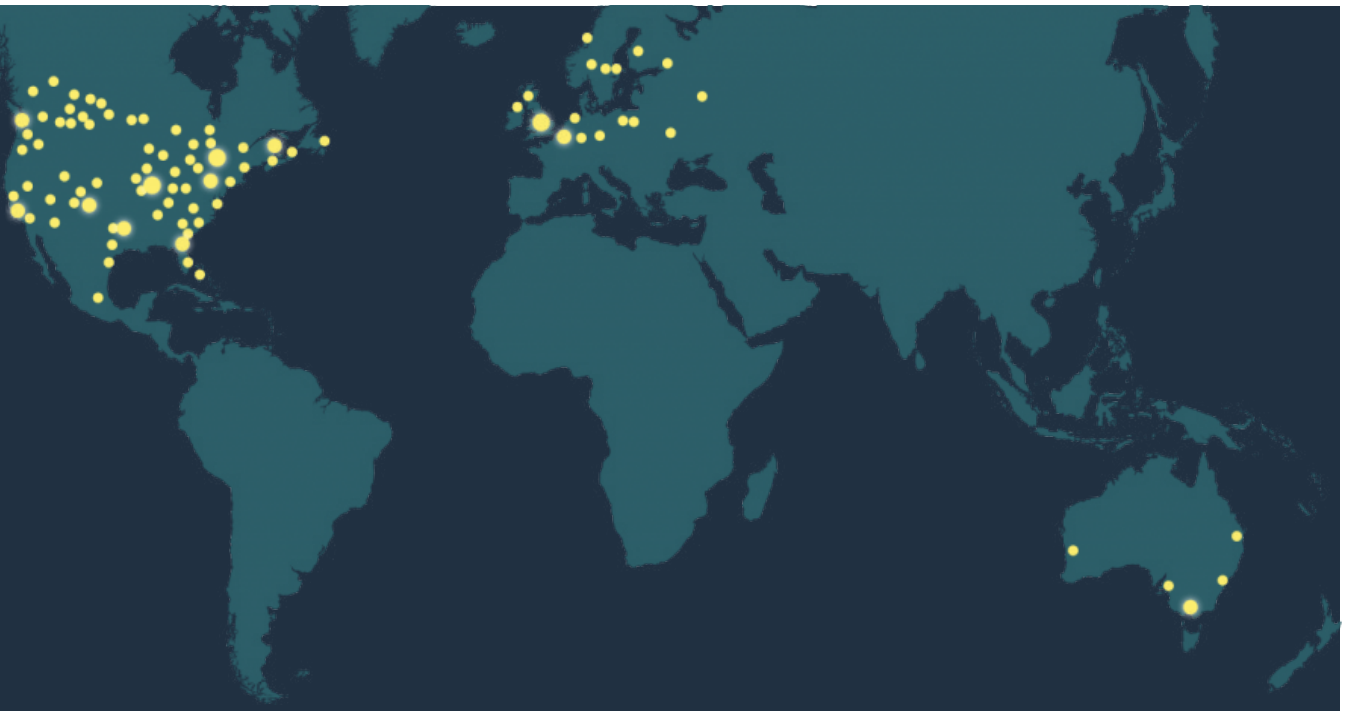
C3 Solutions is an information technology company specialized in yard management (YMS) and dock scheduling (DSS) systems. Since its founding in 2000, C3 has gained the confidence of clients around the world and across many industries including retail, grocery, distribution, manufacturing and parcel post.

Headquartered in Montreal (QC), Canada and privately owned, C3 is dedicated to developing, implementing and supporting the most complete yard management and dock scheduling products on the market today.

For more information,
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