

WHITE PAPER

THE FUTURE IS HYPERLOCAL: How downsizing in the downtown core can future-proof your e-commerce distribution

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In Brief

Inner city congestion and rising delivery costs. Increasing demand for instant fulfillment. Skyrocketing prices for conventional distribution centre real estate. The rise of e-commerce. The four horsemen of the retail apocalypse have come together to give logistics managers a real nightmare.

How do you fulfill customer orders in this environment while still maintaining an acceptable profit margin? Here's a hint. You don't always do it by continuing distribution operations out of remote, gigantic DCs. Over the past couple of years logistics managers desperate to conquer the last-mile challenge have been trying out a new model that turns the old fulfillment model on its head.

Hyperlocal fulfillment is the concept that is emerging as a remedy to the challenges that are making order fulfillment increasingly difficult. It relies on small, numerous fulfillment centres, located in urban areas – either right downtown or close to the core – to stock and ship out goods for e-commerce orders. By bringing the product closer to the customer, then creating and dispatching orders, those orders can be fulfilled faster, on a smaller footprint and can employ innovative final mile delivery solutions.

This paper will look at the challenges giving rise to the trend, and why they must be addressed. We will explain how hyperlocal fulfillment (also known as micro-fulfillment) works, look at the logistics implications, and detail the benefits as well as some of the risks. In the end, you will have a better understanding of whether it might be a solution for your operations.

1.

The Four Horsemen of the Retail Apocalypse

However, for a business that is trying to quickly fulfill and deliver orders in the city, together these four present a formidable barrier to profit. Here is a look at the scope of each challenge.

Increasing e-commerce sales

We have talked about [the rise of e-commerce](#) before. It is widely recognized as this century's greatest disruptor of supply chain operations; and although the percentage of retail sales completed by e-commerce remains quite low – at about 10 percent – in the U.S. that amounted to \$137.7 billion for the first quarter of 2019 alone. Its market share is steadily climbing. Looking back to 2009, e-commerce sales only amounted to less than four percent of the retail total.^[1]

This increase in e-commerce is having a painful impact on bricks and mortar stores, especially in apparel and other product categories that can be easily delivered digitally – books, music and games, for example.

Each taken separately, the challenges presented by burgeoning e-commerce, high real estate prices, the demand for faster fulfillment and the increasing costs of delivery thanks to urban congestion are bad enough.

E-commerce's share of the retail pie in the general merchandise, apparel and accessories, furniture and other category (in other words, general merchandise retailers; furniture and home furnishings; electronics and appliances; clothing and accessories; sporting goods, hobby, book, and music; and, office supplies, stationery, and gift stores) reached 28 percent in the first quarter of 2018.^[2]

What this means is the department stores – which sell all that general merchandise – are having to rethink their strategy, resulting in the closure of retail spaces. In 2018 U.S. retailers shuttered 5,864 retail locations, and as of April 2019 the number had already reached 5,994.^[3]

While this is bad news for those retailers and many of their employees, it is freeing up inner-city retail real estate. Some of those retailers have decided to repurpose those assets into local distribution hubs, while others are taking the decline in inner city pricing as a sign it's time to abandon expensive suburban real estate (see below) in favour of smaller buildings in town.



Congestion and delivery costs

You simply cannot make money at e-commerce if your delivery costs are too high.

Customers increasingly won't pay for the last mile, even though they want orders delivered same day. Recent survey research shows that free shipping is one of the largest inducements for online shoppers. For example, 58 percent will add to their order to qualify for free delivery^[4], while 54 percent will abandon a cart if the shipping is too pricey.^[5]

At the same time, people are congregating in ever-larger megacities. More than 80 percent of Canadians and Americans now live in urban areas, and by 2050 it's expected that the Boston-Washington megalopolis in the US will account for 18 percent of the US population, with nearly 71 million people.^[6]

But with inner-city traffic congestion eating up the hours in the day and burning increasingly expensive fuel at the same time, the cost of dropping packages at customers' doors is escalating. It's estimated that the last mile for e-commerce orders accounts for 53 percent of the total cost of shipping.^[7]

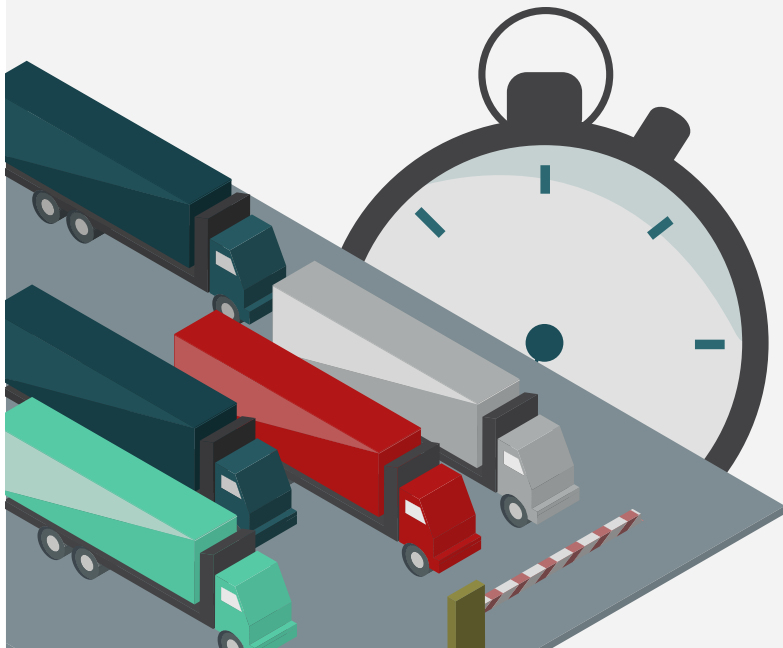
Up to six different solutions to the last mile problem are now being used by e-commerce retailers, including home delivery, in-store pickup, drive-through pickup, curbside pickup, virtual supermarket and automatic subscription.^[8]

Hyperlocal fulfillment allows for easy delivery or pickup strategies, by positioning the fulfilled order close to the customer's home or place of work. It can avoid the last mile delivery altogether by putting the onus on the customer to pick up the order, and theoretically should allow for lower prices. When delivery is still required, customers can get their orders via Uber-style delivery services, or by new types of transport such as drones, or even old-fashioned ones, like bicycles.

Demand for instant fulfillment

Thanks in large part to Amazon's ever-accelerating fulfillment speed, e-commerce has become a race to the front door. Same-day delivery for urban customers has become simple table stakes, and the bar is moving higher with even shorter delivery windows on offer. Customers are growing used to faster fulfillment, with close to half expecting delivery speeds to continue increasing, according to a recent survey.^[9] As same-day delivery becomes too slow, retailers will strive to match the "30-minutes or free" standard that used to be a pizza delivery promise.

If you could begin deliveries only blocks from your customer's door instead of miles, that time to order completion could be drastically reduced. **Again, that's where the idea of local distribution hubs solves e-commerce challenges.** When the order starts its journey three blocks away, there's no need to wait until the end of the day for delivery.



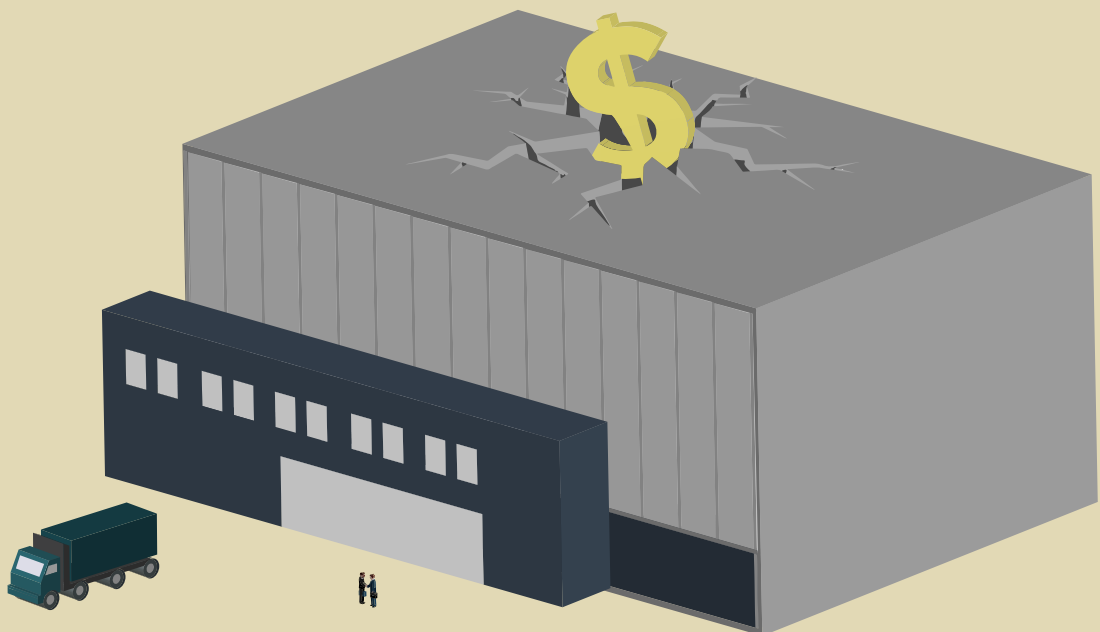


Rising cost of conventional DC lands

We are running out of space for large distribution centres. Major metropolitan areas have for years seen DCs circled around the outskirts, clustered near major transportation arteries in vast industrial parks. But urban sprawl has made this land extremely valuable, forcing commercial developers farther and farther afield in search of affordable greenfield opportunities for new distribution facilities.

A shortage of quality commercial properties is driving prices up, while the requirements of typical new e-commerce fulfillment centres mean larger and larger footprints are needed. A large DC 15 years ago would have been 100,000 square feet; now it's more like 500,000 square feet and that kind of footprint uses up the land zoned for such developments at a rapid pace.^[10]

Retailers are considering multiple strategies to counter the real estate challenge. They can go farther afield to B-class developments where the rent is cheaper but transportation costs are higher, they can split things up and operate multiple DCs, or they can look into the option of utilizing recently vacated retail space in the urban core.



2.

Heading off the Horsemen

Hyperlocal fulfillment takes advantage of shorter delivery distances to increase the speed of order fulfillment and reduce delivery costs. It leverages underutilized retail and urban real estate to offset the costs of larger DCs on the periphery.

Micro fulfillment models

Hyperlocal fulfillment uses relatively small fulfillment centres, often automated, delivering in a tight radius, on a very constrained schedule. Not everybody does micro-fulfillment the same way. Some are taking underused retail stores and closing off a section to create a mini-DC in the 'back room', leaving part of the store as customer-facing retail; others are repurposing entire department stores, or smaller retail units into pure-play small fulfillment centres or 'lights out' stores. Still others have conceived of tiny fulfillment centres that stand alone in the parking lots of retail malls. All of these models can provide home delivery, BOPIS, or one of the other pick-up types.

Examples of retailers adopting hyperlocal strategies include Target, which in 2017 announced it was refitting 600 retail locations into micro-fulfillment centres, with both delivery and pickup available.^[11]

With all these pressures, it's no wonder **logisticians** are being creative in designing fulfillment networks. It just makes sense to bring the fulfillment centre closer to the customer, when the last mile is proving to be such a costly challenge.

Grocery chains like Albertsons and Walmart have also piloted or rolled out micro-fulfillment centres.

Rapidly developing automation technologies are supporting this push. The use of automation is paramount – it speeds up picking, reduces labour costs and can achieve much greater storage density than the traditional aisle-picking model. Automation is permitting the use of smaller footprints by densifying storage. With AS/RS technology mini-DCs can rise many stories on a small footprint, which allows for the use of existing urban buildings, as well as the construction of newbuilds on small lots.

According to third-party robotic fulfillment provider, Common Sense Robotics, grocers lose US\$5 to \$15 on every manually picked online order because each \$100 order requires an hour of picking at \$20.^[12] They have already launched the third-party logistics version of hyperlocal distribution, offering turnkey fulfillment services to grocers from a network of local, fully automated DCs they are building.

Takeoff Technologies offers an alternative model, using underutilized space inside existing retail stores and building fully automated storage and retrieval units (AS/RS) that take up about 10,000 square feet. The company recently signed a deal with integrator Knapp to open 50 sites across North America. Takeoff claims they can build and open a new facility in just a couple weeks.

Benefits

Hyperlocal fulfillment appears to be one workable solution to the omni-channel e-commerce challenges facing retailers today. Faced with the apocalyptic four horsemen described above online retailers can use the strategy to reduce the costs associated with [last-mile delivery](#).

Moving the product closer to the customer before fulfillment reduces the time and distance of delivery. It takes advantage of underutilized retail assets by enabling existing storefronts to section off a 'back room' where orders can be fulfilled automatically. **Alternatively, it leverages less attractive inner city real estate**, allowing for all-new micro-DCs to be opened where traditional retailers have abandoned ship. **Finally, automation reduces labour costs and increases accuracy and speed.** This streamlined model delivers the higher accuracy and faster speeds that bring customer satisfaction, and in the e-commerce environment, good reviews can mean the difference between business success and failure.

Some large enterprises are integrating a [hyperlocal strategy](#) into their overarching distributed order management model. Distributed order management (DOM) uses an algorithm to determine the lowest cost method of fulfilling an order. This means it can take into account factors such as the locations of both the stock and the customer, the available time to fulfill the order and shipping costs for various options. When integrated with a hyperlocal DC network, the DOM system can decide if picking the goods from the most proximate micro-fulfillment centre to the customer really will create the greatest profit for the order.^[13] While this level of sophistication is currently only viable for large companies (like Home Depot which is using it), as the price of

powerful big data-crunching computing power comes down, such sophistication may become to norm.

While the jury is out on which hyperlocal fulfillment model might work the best, as consumers continue to demand faster delivery and the availability of more products delivered to their doorstep or a local pickup point, retailers need to continue to explore ways of making a micro-fulfillment system work for them. This is not a sci-fi fantasy world; it's real now.

The trend is also generating side benefits for the [logistics industry](#) itself. The growth of the last-mile challenge has pushed the development of new technologies like automation, robotics and drones. New automation and robotics technologies are already seen operating within the tiny DCs, and are proving to be a success.

Drones are still on the cusp of commercial practicality, but various local delivery trials are demonstrating that the airborne AGVs may yet be used for e-commerce deliveries, dropping parcels off at the equivalent of super mailboxes. These special landing pads will receive the parcels and act as pickup points for consumers. Perhaps even sooner we may see robots on the sidewalk, making deliveries for local retailers.

Lowe's, for example, is trialing a FedEx delivery robot for same day local orders. It can navigate sidewalks and steps to reach individual homes, and will be able to interface with a human recipient.

As hyperlocal fulfillment becomes normalized, demand will rise for these delivery options and will help to spawn yet others. Those technologies that can most quickly, cheaply, accurately and reliably move parcels from the local hub to the home will be the winners in the hyperlocal fulfillment game.

Operational considerations

With automation doing the bulk of the work, these micro-DCs can operate with very little human labour, relying on people essentially only to manage replenishment and order completion. This makes them less expensive to run, but also highly reliant on properly functioning software to ensure demand forecasts are accurate.

When operating a small, quickly turning inventory the risks of stock-outs are high, making timely, accurate replenishment a key operating function. As we know, ensuring inbound deliveries to the old-school distribution centre are timely and handled efficiently is difficult enough. Setting and keeping appointments, managing the comings and goings to drivers and trailers is a delicate tango, best managed by a sophisticated scheduling software package such as we offer with [C3](#)

[Reservations.](#)

When you change the game so that the micro-DC is located in a busy downtown core it's a different world.

Imagine dealing with these risks and realities:

- ✓ Few or possibly even no dock doors.
- ✓ Because of the limited storage space involved there will be only small quantities of each SKU on hand, meaning replenishment will be frequently required.
- ✓ More frequent replenishment will mean more, smaller trucks on the road, creating more complex schedules.
- ✓ Routing of inbound loads will be more complicated than traditional store replenishment. Will there be one truck making multiple drops or multiple trucks with a full load for each DC?
- ✓ Traffic congestion will cause unexpected delays or even missed inbound deliveries.
- ✓ With smaller staffs there will be fewer workers on hand to step in to unload trucks more quickly in the event of a late arrival.
- ✓ Delivery times may be restricted by municipal bylaws governing noise and emissions.
- ✓ There will likely be nowhere for trucks to wait if the dock isn't available when they arrive.
- ✓ Under these circumstances this has to be precision warehousing. The margins for error are miniscule. That's why, in addition to the complex algorithms needed to make the automation churn out orders for rapid fulfillment, the logistics manager in charge also must be able to see – and more importantly control – what's happening on the inbound side.

Being able to rely on a proven **Dock Appointment Scheduling system** to manage inbound schedules means having more time and resources to devote ensuring that the orders going out the door are on time and 100 percent accurate. With such complexity it's critical to have application software that will integrate seamlessly, is **cloud-based**, and flexible enough to manage so many moving parts at the same time.

Facing the future

As with any major rethink of a supply chain strategy, adopting a micro-fulfillment model will require proper planning and analysis. Recent survey research shows that only a very few supply chain managers (about 14 percent) are even aware of the option,^[14] so it's by reading papers like this one that you and your peers will become familiar with the concept and what it can do for you.

Beyond that, however you can create a quick checklist that might help kickstart building a micro-fulfillment network for your e-commerce business.

Ask yourself these questions:

- ✓ Are last-mile delivery costs eating into our profit margin?
- ✓ Do they represent more than half of delivery costs?
- ✓ Is your e-commerce business expanding?
- ✓ Are the majority of your customers in dense urban areas?
- ✓ Are you looking at needing more fulfillment centre space in the near future?
- ✓ Could your retail stores accommodate a micro-fulfillment area inside their walls?

If you answered "Yes" to more than a couple of these questions, it's time to seriously crunch the numbers.

We're not here to tell you how to make it work, but we certainly can help you maximize the usage of your dock doors when you do go down the hyperlocal route.

C3 Solutions will be your scheduling partner. Our solution will have your back and let you do the hard work of making sure orders get out the door efficiently and cost-effectively.



3. Solving the Future

Traditional, 20th century retail logistics networks were designed with large DCs located at the fringes of urban centres and close to freight transportation infrastructure because it was a model that worked. When you had large LTL shipments or truckloads going to stores both close by and far-flung on a weekly basis or so, this made perfect sense. There was a reasonable balance between inbound and outbound loads, timing was important but not crucial, and demand was predictable.

That world is long gone. E-commerce has disrupted it, and logisticians are striving to reinvent distribution to keep up with omnichannel retail. This is the future, and it cannot be ignored. The trends that are making hyperlocal fulfillment a viable, attractive last-mile distribution strategy are, as we have seen, eroding margins, making stores sometimes obsolete and bringing the old hub-and-spoke logistics model into question.

The factors that have contributed to the decline of the traditional model and the rise of micro-fulfillment are showing no signs of abating. As we have seen, population centres are becoming denser, online shopping is entrenched, and customers' expectations continue to rise. The pressure to deliver faster and in more places is intensifying.

If real estate weren't so costly; if Amazon wasn't raising the stakes in the home delivery game; if e-commerce weren't making retail more challenging; and if delivery were cheaper, we wouldn't be having this discussion.

As long as e-commerce continues to be the driving and dominating force in retail and our current demographic trends persist there will be a place for micro-fulfillment.

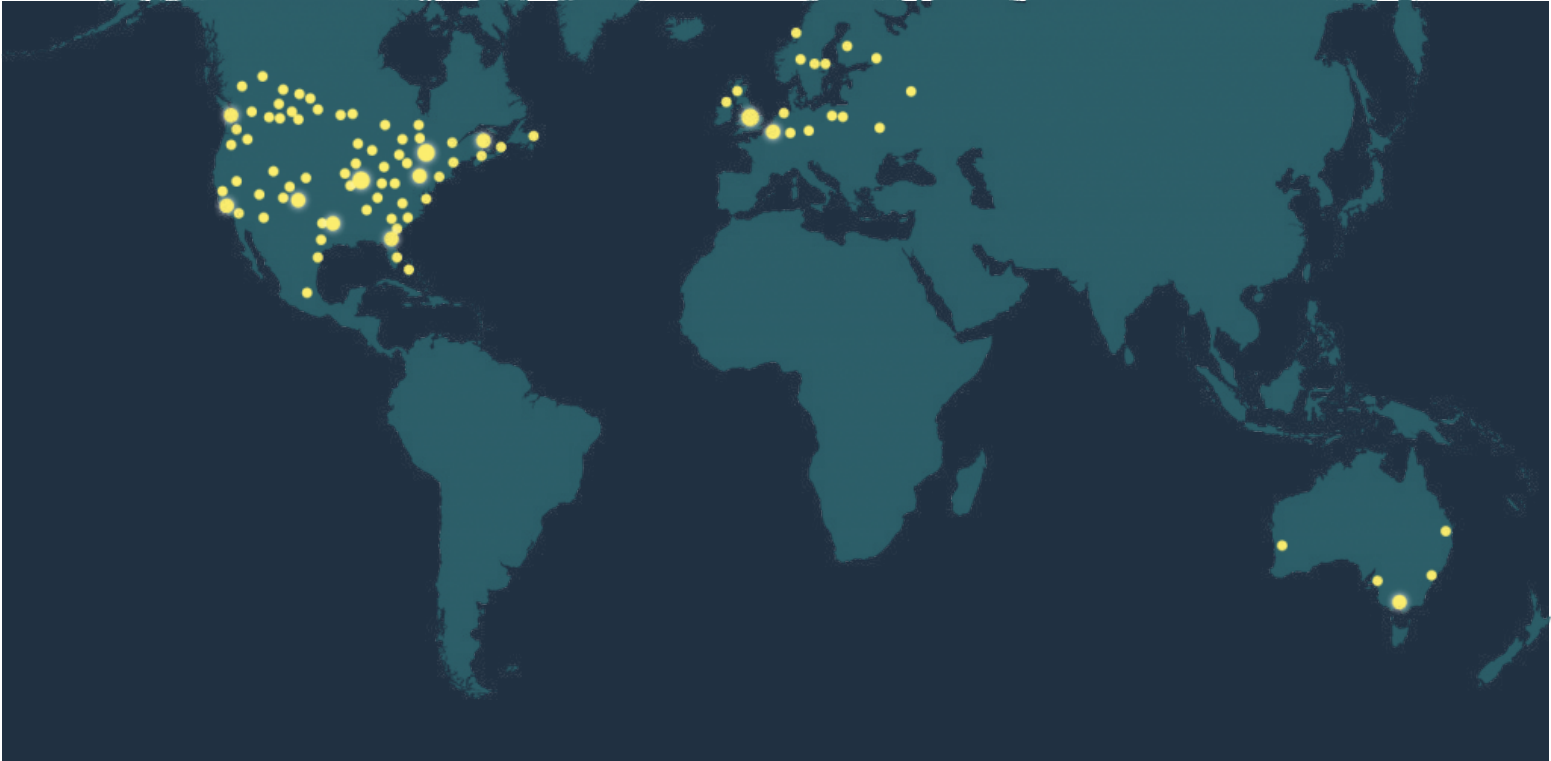
What remains to be seen is the best way to manage it for sustainable success. It adds considerable complexity to fulfillment operations, leaving operations managers and C-suite planners alike searching for the most efficient ways to make the switch. But these planners are fortunate in many ways.

The rapid development of sophisticated storage and retrieval automation technology, together with our growing abilities to process and make use of vast amounts of data captured through supply chain activities has created a moment where hyperlocal fulfillment is a workable solution to the last mile problem.



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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.

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