

Körber Supply Chain

# The big opportunity in micro fulfillment



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## Introduction

The global pandemic may have accelerated a shift in shopping habits, but a consumer-led revolution was already taking place.

Customers now demand timely and convenient delivery options, and retailers all over the world know that speed and efficiency are key to success. Exploring new ways to fulfill orders and get closer to the consumer is crucial when it comes to gaining a competitive edge. If you can't provide your customers with fast and convenient delivery times, someone else will.

# The rise of ecommerce and urbanization

As of 2021, 54% of the world's population lives in an urban area. That has been projected to rise to 68%, with many of them living in mega cities with populations over 10 million.<sup>1</sup>

In 2020, online grocery shopping had risen to 10% of US grocery sales – 4 years earlier than expected.<sup>2</sup> Globally, e-commerce sales increased to 16% of all sales – an increase of 19% on the previous year.

This shift in consumer behavior will only continue to escalate, with e-commerce set to dominate consumer spending in 2022. With this continued rise in demand, and encroaching mass urbanization, it's time to rethink logistics – particularly the ever-elusive “last mile.”

**“The expectations of the consumer have become momentous, as have the impacts on supply chain execution. Time-to-consumer, alongside distance of delivery, must all be reduced. Building customer loyalty depends on a fast, efficient experience, right to their doorstep, over and over again.”**

**Craig Moore**

Körber Supply Chain Vice President of Sales

Micro fulfillment presents a big opportunity for retailers and e-tailers of many different sizes and verticals to meet escalating customer expectations in greener, more cost-effective ways.



# What is micro fulfillment?

Micro fulfillment refers to small-scale warehouse facilities in accessible urban locations. They are also known as urban warehouses, dark stores, hubs or sorter DCs. Their strategic advantage is same-day, high-speed order fulfillment, made possible by close proximity to the end customer. They are widely regarded as an effective alternative to full-sized urban warehouses.

According to SDC:

“The year 2022 will be the cornerstone for the micro fulfillment market, touching a billion-dollar mark and setting the base for the future. It is expected that there will be one MFC for every 10th of US total 40,000 grocery stores by 2030.”<sup>3</sup>

Sometimes micro fulfillment centers (MFCs) are purpose built, but there is also the opportunity to occupy existing spaces, such as unused car parks, stockrooms, office buildings or shopping centers. This can already be seen with Amazon, who have reportedly been moving into empty department stores in the US to repurpose them into MFCs.



## 300,000

Average distribution centers (sq. ft)

### TYPICAL GROCERY MFC STATS<sup>4</sup>

- 1-2 aisles dry
- 1-2 aisles chilled
- 5,000-8,000 totes
- 2 decanting stations
- 2-4 pick stations (each picking at 700-800 UPH)
- 400% throughput rates (on average)

## 3,000-25,000

MFCs (sq. ft)

Leading retailers are already introducing this strategy, with micro fulfillment hubs being built all over the world to meet a surge in online orders during the early stages of COVID-19 – and beyond. And it's growing – fast.

# Why micro fulfillment?

MFC benefits

			
Moves fulfillment closer to the consumer, thereby meeting customer demands for faster deliveries	Lowers transportation costs by up to 75% through shorter, greener journeys	Offers operational flexibility and agility through smaller, more easily managed operations	Reduces emissions in urban areas

Ultimately, micro fulfillment offers local and mid-tier businesses the opportunity to get ahead and compete with the likes of ecommerce giants such as Amazon.

Micro fulfillment offers a sweet spot for many retailers and e-tailers. The flexibility, agility and low barrier to entry, coupled with throughput rates of 400%, make it an attractive approach.

Current infrastructure simply does not allow for retailers to pick, pack and deliver in a three-hour window, which means many warehouses and supply chain networks fail to deliver on the e-commerce challenge. The beauty of it is many retailers already have the real estate in metropolitan areas which will help them to meet shorter delivery windows. The bricks and mortar site is already available in locations where traditional warehouse space is typically near-impossible to find. This provides an opportunity for retailers to meet increasing consumer demand with shorter fulfillment times.

But the benefits do not end at increased fulfillment speeds. With fewer truck movements in tight city areas, there are efficiency and environmental gains to be realized when a parcel only needs to make a 5 km trip from an inner-city store, instead of traveling from an industrial estate on the fringes of the city.

Due to its urban hub nature, micro fulfillment provides greater access to innovative last-mile delivery solutions through the gig economy. Restaurant delivery partners such as Deliveroo and UberEats have set a high bar when it comes to customer service and speed of delivery, encouraging retail consumers to seek the same experience for any online purchase.

Rethinking current assets and converting them into additional fulfillment capacity to cope with the continuing rise of e-commerce makes business sense. But it's not the only option.

**“Exploring micro fulfillment options will give any retailer a head start on Amazon penetrating the retail market on a larger scale.”**

**Nishan Wijemanne**  
Körber Supply Chain  
APAC Managing Director and Global  
AMR Solutions Leader

# Making micro fulfillment a reality

Converting a physical store into an MFC can be as easy as closing the doors and asking all employees to complete online orders within that space. This is essentially a distribution center within a store.

Micro fulfillment can range from using existing equipment, to having a voice application to assist with workflow, to optimizing picking with technology, all the way up to restructuring the environment.

However, the real efficiency benefits come into play when automation is introduced.

Automated Mobile Robots (AMRs) enable goods to be picked much faster and at much higher accuracy rates, ultimately offering retailers the ability to deliver that premium customer experience.

When it comes to adapting existing infrastructure, it's easy with AMRs. Many AMRs require less than three meters of clearance, which means they can fit into any pre-existing store space.

Automated solutions in MFCs need to be agile enough to cope with seasonal demands, and flexible enough to fit in non-typical fulfillment environments, as they often need to work in unison with a connected retail site. This is where AMRs offer a significant advantage over fixed automation.

**“Creating efficient processes is key to building a micro fulfillment operation. The introduction of automation enables the speed of movement through operation, empowering the workforce. Leveraging adaptable automation ultimately enables continuous process improvement, which is vital for profitable growth.”**

**Craig Moore**  
Körber Supply Chain  
Vice President of Sales



# Five ways into micro fulfillment



## 1. Fulfill in an existing environment

This is micro fulfillment in its simplest form – many grocery retailers use this approach. While it is relatively easy to set up and doesn't require much dedicated space, it still involves staff moving in and out of aisles, pushing carts and causing congestion in a store that is still in use by customers.

If you are experiencing an increase in demand, you still need to rely on additional staff to fulfill orders. Many of those staff will then not be available to help customers instore, which could lead to poor customer service.



## 2. Use dedicated space

This approach allows picking staff to be separated from retail floor space, where customers are shopping. This gives a greater flow of traffic and allows for some ability to adapt to growing demand.

However, there are challenges surrounding inventory, so retailers may need to place their high-velocity SKUs in this space and pick from the retail floor to handle remaining SKUs.

This has limitations when it comes to meeting growing online demand.



## 3. Flexible goods-to-person

Using a dedicated space while utilizing a higher-density storage capacity with Automated Mobile Robots (AMRs).

Goods-to-person technology allows for increased flexibility and allows a much higher volume of inventory in a smaller footprint compared to manual picking shelving. This model also offers a much higher throughput level, with many designs offering approximately 500 picks per hour with only two operators.

There is also the added value of being able to scale up and add more workstations or storage space to cater for growing online demand.

This kind of mobile automation is very quick to implement, and can often be done in a matter of weeks, compared to the long lead times of traditional fixed automation.



## 4. Order-to-person

Introduce assisted picking AMR technology through order-to-person. Orders are grouped and sent on robots to the closest operator-managed zone and are presented to the worker stationed there. They then continue to the next pick location in that zone.

This is easy to implement into an existing retail footprint. It provides the capability to increase efficiency and fulfill growing online demand.

However, it can be difficult to balance the retail floor space with the growing demand to avoid congestion. Furthermore, specific aisle widths are needed to ensure that operators can pass with adequate clearances.



## 5. Hybrid model – goods-to-person and order-to-person

This solution offers ultimate flexibility. Dedicated space is limited, allowing higher-velocity products to be stored and fulfilled with an AMR goods-to-person solution, offering a high throughput. This is then coupled with an AMR order-to-person solution to travel the existing retail floor space for the remainder of the pick.

# First steps towards micro fulfillment

Micro fulfillment is widely regarded as a new, time-consuming and complex method of fulfillment. It may seem daunting to some, but Körber has been developing capabilities in this field for over three years, with major retailers all over the world.

Ultimately, micro fulfillment is a challenge that must first be answered with expert-informed strategy.

## 1. Know your customer

The first step in the fulfillment optimization journey is to look at your customer profile. Think about whether you serve a specific niche, and if so, ask yourself if it would make sense to introduce an MFC in that urban area.

## 2. Understand the risks

Secondly, it's important to understand the cost of picking in store. It's not just the hourly headcount cost to consider – it can have a major impact on your customer experience too. You need to ask yourself how engaged are your staff with your customers, especially if they are incentivized to not interact with them?

## 3. Work with what you have

It's critical to understand what your current order structure looks like, how much it's projected to grow by, your real estate environment, and how much space you have.

Review your operations, carry out a high-level data analysis and monitor your return on investment. Then design and implement a solution with an implementation partner. It's essential to work with someone who can review and understand your operations, align with your outcomes and design a solution based on your business and projected growth.

Step through the process logically and work closely with an expert to understand what technology you do and do not need to fulfill the needs of your customers.

**“We realized very early on that we had to have our team and response rate on point so that we can have a micro-fulfillment center ready with optimally designed operational workflows in a matter of weeks or days.”**

**Ravi Nath**

Körber Supply Chain

Head of AMR Solutions ANZ





# What's next?

The retail sector is on the cusp of a major transformation, and the last mile is now the point of difference. When you start to embrace new ways of fulfillment, there are more opportunities than simply making it faster – including exploring new technology such as virtual and augmented reality.

**“The evolution of these technologies opens up the way to deliver what looks and feels like a traditional in-store shopping experience any place and any time. Will this offer a new twist on the ability for consumers to shop and pick up or engage products quicker, transforming or forcing our supply chains as we know them to pivot or adapt?”**

**Nishan Wijemanne**

Körber Supply Chain APAC

Managing Director and Global AMR Solutions Leader

Körber have a wealth of experience in delivering fulfillment improvement rates upwards of 400%, as well as making next-day and same-day delivery a reality for some of the world's largest retailers.

Visit our website to find out how we can help you manage and optimize your MFC:

[Read more →](#)

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