

EHI WHITE PAPER

Quick Commerce

Micro-Hubs as a Last-Mile Game Changer?



EHI

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Many of the graphics shown in this study are available in our online statistics database at www.handelsdaten.de and can be downloaded as xls, pdf and jpg files.

You can find graphics related to Quick Commerce at:
<https://www.handelsdaten.de/handelsthemen/quick-commerce>



Dear Readers,

According to an article by the German E-Commerce and Mail Order Trade Association (bevh), the second year of the pandemic demonstrated that “e-commerce has clearly established itself as the new normal for consumers and retailers”. Recent sales figures provide an illustration of this new reality: In 2021, online sales grew 19 percent over the previous year, from 83.3 billion euros to 99.1 billion euros.¹

To keep pace with this massive shift in consumer behaviour, the retail industry is investing heavily in multichannel and omnichannel solutions. However, before these projects can even be completed, a new challenge has emerged. It is known as “quick commerce”, and many are referring to it as a megatrend. The problem that a lot of retailers are facing, however, is that their warehouses and distribution centres are located outside heavily populated areas, and they must transport their goods over long distances. This effectively takes the “quick” out of quick commerce. So how can retailers ensure their products are available where their customers are? Quick delivery services (those that have not yet left the market) and a number of retail companies have begun to tackle this issue. They are increasingly relying on micro-hubs located in major cities and towns to reach customers in the shortest possible time. The idea is not new, and these forms of smaller logistics centres have existed in urban areas for a while now.

So do retail companies and their CEP and logistics service providers need to start rethinking their fulfilment strategies? Is it really worth the effort to

a) look into this as a business model and b) take steps towards implementing it? What do insiders think? How developed is the market and what must companies be aware of when deciding where and how to set up a micro-hub? These are the questions EHI had in mind when it conducted an online survey in January and February 2022. Interroll commissioned the project and helped design the questionnaire, which was sent via link to 791 logistics experts from a range of industries. By the cut-off date, 74 surveys had been returned, 29 from representatives of the retail industry. This gave us a response rate of 9.3 percent. The key insights are presented in this white paper. You will also find advice on setting up a micro-hub and information on the potential benefits of automated intralogistics processes for quick commerce.

Cologne, March 2022

Marco Atzberger
Member of the Management Board
EHI Retail Institute

¹ <https://www.bevh.org/presse/pressemitteilungen/details/e-commerce-ist-das-neue-normal-branchenumsatz-waechst-2021-auf-mehr-als-100-mrd-euro.html>

Introduction and Scope

So what is a micro-hub? A quick look online will yield a range of definitions that are, for the most part, not entirely dissimilar. German website micro-hub.eu, for example, provides the following explanation: “Micro-hubs are mobile or stationary collection points for inventory in inner-city or densely populated residential areas. They can range in form from storage containers to small warehouses. Goods are delivered to these centres, briefly stored and then collected by small, ideally low-emission vehicles. ... These vehicles then complete the ‘last mile’ of the delivery process.”²

However, companies and potential investors might still be left with questions. For example, what

is the ideal location for a micro-hub, how big should it be and what area can it serve? Logivest GmbH and the Logistics Facility space of the Bundesvereinigung Logistik e.V. (BVL) designed an Urban Logistics Facilities matrix to help answer some of these questions.

It provides an overview and comparison of hubs ranging from micro to metropolitan. According to the matrix, micro-hubs are located in city centres (> 50,000 residents), cover an area of maximum 2,500 square metres and serve a radius of one kilometre (Fig. 1).

Urban logistics facilities

(Fig. 1)



	Micro	Urban	City	Metropolitan
Location	City centre	Inner ring	Middle ring	Outer ring
Infrastructure	Public transport/ bicycle	Public transport/ bicycle	Street	Street
Multi-storey	x	x	x	x
Mix	x	x	x	x
Building type	Mixed use	Mixed use	Single use	Single use
Property price/sqm	> €500	> €300	> €250	> €200
Warehouse rent/sqm	> €15	> €12–15	> €10	> €8
Radius served	1 km	2 km	5 km	10 km
Upper level dock	–	+/-	+	+
Population	> 50,000	> 50,000	> 100,000	> 100,000
Property size	< 5,000 sqm	< 10,000 sqm	< 20,000 sqm	< 25,000 sqm
Direct delivery of food B2B B2C	+	+	+	+
Floor space	< 2,500 sqm	< 5,000 sqm	< 10,000 sqm	< 10,000 sqm

Source: Logivest GmbH and the Logistics Facility space of the Bundesvereinigung Logistik (BVL)

² <https://micro-hub.eu/DEFINITION/>

Sustainability – Decongesting Cities

Motorists in major cities are noticing that a growing number of bicycle lanes are being integrated into the city streetscape. What they are unaware of, however, is that a rapidly growing number of micro-hubs are also being integrated into the urban infrastructure. While bicycle lanes are designed to facilitate bicycle traffic, micro-hubs – at least in theory – are intended to facilitate deliveries. This analogy can be stretched to include green mobility, as both bicycle lanes and micro-hubs aim at reducing traffic and CO₂ emissions, a goal that is echoed by the EU's ambitious climate targets.

A report on “Changes in commercial delivery systems and their effect on urban logistics” by LNC LogisticNetwork Consultants GmbH, Berlin, and the Fraunhofer Institute for Material Flow and Logis-

tics (IML), Dortmund, highlights this aspect of sustainability. Chapter 8.2 explains that micro-hubs reduce urban traffic and, thus, harmful CO₂ emissions. “In addition, alternative modes of transport can be used instead of conventional vehicles to make better use of (limited) urban space.”³

The Zukunftsinstitut in Frankfurt published an article looking at the developments that will shape the cities of the future and how they will affect society and the economy. In it, they stress the importance of new mobility solutions “for logistics, and, in particular, last-mile deliveries”.⁴

“Micro-hubs are creating new possibilities for faster and more sustainable last-mile deliveries between distribution centres and end customers.”

Ingo Steinkrüger, CEO
Interroll Group

³ https://www.bmvi.de/SharedDocs/DE/Anlage/G/staedtische-logistik-bericht-veraenderungen-lieferverkehr.pdf?__blob=publicationFile

⁴ <https://www.zukunftsinstitut.de/artikel/wohnen/futopolis-die-4-thesen-der-trendstudie/>

Profitability – Diversifying Distribution

There is mounting pressure to leave the beaten path when it comes to online retail delivery. According to the German Delivery and Express Logistics Association (BIEK), German CEP service providers delivered 4.05 billion items in 2020, representing a 10.9 percent increase over the previous year. For 2021, this is expected to grow by a further 8.0 percent. By 2025, BIEK predicts an annual growth rate of 7.0 percent and a shipping volume of 5.68 billion.⁵

Micro-hubs make it possible to more efficiently handle and distribute enormous volumes. Cars, vans and trucks can be replaced by cargo bikes, scooters and e-vehicles for last-mile deliveries. Optimised routes reduce transport costs, take pressure off already tight margins and ensure consumers receive their online orders in the shortest possible timeframes. In the future, drones or autonomous vehicles, such as delivery robots, could further reduce the pressure on couriers. This opens a range of opportunities for retailers to increase last-mile efficiency, reduce logistics costs, improve customer loyalty and strengthen their e-commerce business.

With this new model, companies are seeking to offer their customers rapid delivery of goods – sometimes within as little as 10 to 15 minutes. New

players such as Gorillas, Picnic, Getir and Flink are storming the market with aspirations of transforming a niche concept into a mainstream business. Food retailers that have been reluctant to invest in their own micro-hubs are now teaming up with these delivery services to take advantage of the trend.

However, before companies can offer their customers rapid delivery, they must first overcome the huge intralogistics challenges associated with micro-hubs. For example, large quantities of goods must be handled in a very small space. Until now, this has largely been done manually and is very labour intensive. However, there are now a number of robotics and automated solutions available for storage and handling that can be specifically designed with the expected order volumes in mind. We will look at them in more detail below.

⁵ https://www.biek.de/files/biek/downloads/papiere/BIEK_KEP-Studie_2021.pdf

Consumers – Multiple Channels for Maximum Availability

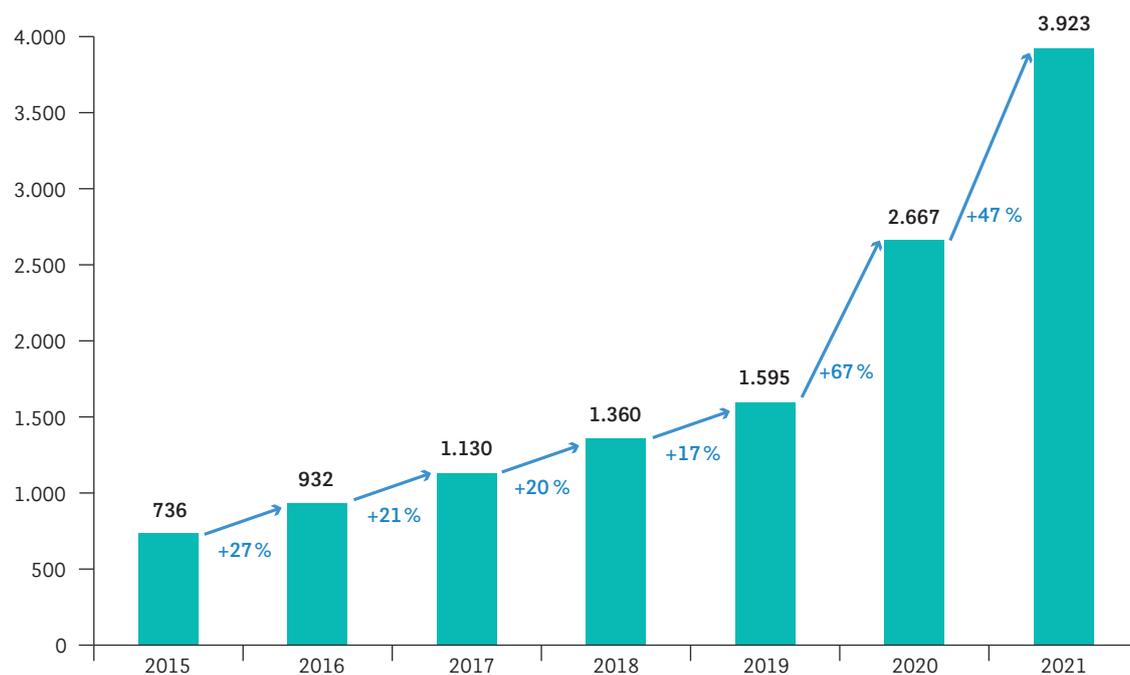
New business models, such as quick commerce, developed in response to recent developments. The Covid-19 pandemic, in particular, transformed retail overnight and caused e-grocery to boom. People of all ages appreciated the convenience of online shopping during the long Covid-19 lockdowns, as they no longer had to leave the comfort of their four walls to stock up on daily necessities or treat themselves to new products. Instead, they could re-

ceive their items within conveniently agreed time slots. In the B2C sector, in particular, online food orders grew considerably. As the graph below shows, online food sales in 2020 increased by 67 percent over the previous year. In 2021, a further growth of 47 percent was recorded (Fig. 2).

Sales growth in online food retailing in Germany (2015–2021)

(Fig. 2)

Gross sales (in million euros)/growth rate



Source: EHI based on data from the German E-Commerce and Distance Selling Trade Association (bevh)

“E-commerce is increasingly becoming the norm and the standard.”

Gero Furchheim
bevh President

bevh does not expect online sales to return to pre-pandemic levels. In fact, in a press release from January 2022, bevh President Gero Furchheim was quoted as saying, “... e-commerce is increasingly becoming the norm and the standard. After some initial spikes at the beginning of the pandemic, growth has stabilised at a high level. Thanks to its many advantages, such as greater product range and better service, it is clear that e-commerce is here to stay.”⁶

The key words here are “greater product range” and “better service”. To be competitive, companies must not only offer an attractive range of products

– whether broad or differentiated – at fair prices but also provide high-quality service. Consumers expect to be taken on a unique customer journey, often via an app or social media. That is why it is important to ensure that as many goods as possible are made available through as many channels as possible and that delivery times continue to drop. Micro-hubs located close to end consumers could play a key role in this.

⁶ <https://www.bevh.org/presse/pressemitteilungen/details/e-commerce-ist-das-neue-normal-branchenumsatz-waechst-2021-auf-mehr-als-100-mrd-euro.html>

Micro-hubs – What Can and Must (Not) Be Done

In addition to collection points and parcel lockers, micro-hubs offer a promising, practical and efficient means of ensuring the supply of goods in urban areas. Products can then be taken from these centres and used to serve both e-commerce and click & collect customers. However, land in major cities is expensive and good locations are hard to come by, causing greenfield projects like these to often fail.

Nevertheless, if it's true that micro-hubs or micro-fulfilment centres (MFCs) require a maximum of only 2,500 square metres – a small fraction of the up to 300,000 square metres needed by traditional distribution centres – then there are certainly ways around this issue.⁷

Micro-hubs can be integrated into existing warehouses, vacant retail outlets, department stores, offices or car parks. This is also more cost-effective than setting up a new location. As Alexander Pinker and Marco Prüglmeier note in their book “Innovations in Logistics”, published at the end of 2021, efficient use of space is key. In order to achieve this and meet the demand for increasingly shorter delivery times, the authors recommend automated storage and picking solutions. Particularly in inner cities, limited space and other constraints, such as noise restrictions, must be taken into account.⁸

Loading and unloading, overnight replenishment of stock and automated sequencing processes may be disruptive to residents, and low-emission zones, access restrictions and congestion charges may apply in some inner-city areas. These factors must be kept in mind when renovating vacant properties, repurposing existing spaces or planning new buildings. Unfortunately, there is no one-size-fits-all recommendation for setting up a micro-hub and companies must instead tailor their solutions to fit their own specific strategies and locations. They must also work closely with local governments, officials, residents, logistics service providers, retailers and property owners.⁹

The “Handbook: Micro-Hubs in an Intermunicipal Network – the Case of the Municipalities of Krefeld, Mönchengladbach and Neuss” by the Mittlerer Niederrhein Chamber of Commerce and Industry offers further help. It points out that price and expected throughput should play a role in determining the design and size of a micro-hub. According to the authors, the handbook can be used as a business plan.

In the foreword, Hendrik Wüst, former Minister for Transport and current Minister-President of North Rhine–Westphalia, writes, “Similar municipalities and their partners can use this project as a blueprint to improve last-mile delivery of goods.”¹⁰

“Similar municipalities and their partners can use this project as a blueprint to improve last-mile delivery of goods.”

Hendrik Wüst

Minister-President of North Rhine–Westphalia

⁷ <https://www.warehouseanywhere.com/resources/micro-fulfillment-centers-for-ecommerce/>

⁸ See Pinker/Prüglmeier: Innovationen in der Logistik, Chapter 4.7, p. 131, Huss-Verlag, Munich

⁹ https://www.agiplan.de/wp-content/uploads/2019/05/agiplanquadrat_10_web2.pdf

¹⁰ https://www.agiplan.de/wp-content/uploads/2021/06/IHK_MNR_Leitfaden_Microdepots_48S_3b_2.pdf

Results of the survey on Quick Commerce and Micro-Hubs

The Quick Commerce and Micro-Hubs survey separated respondents into retail and other industries (including manufacturers, logistics service providers and consultants). Of the 73 companies that took part, 40 percent were active in the consumer goods sector and 89.6 percent of these were based in Germany.

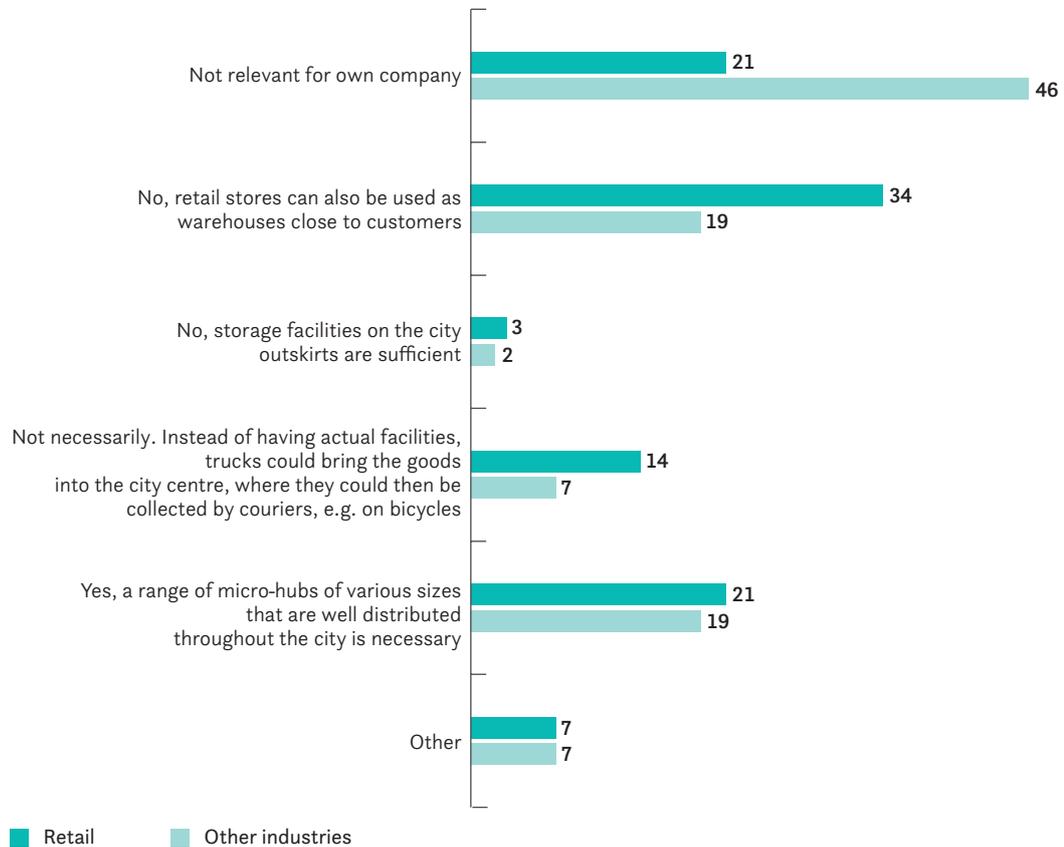
Below is a quick summary of the results. For more in-depth information, please contact EHI or Interroll AG.

- There was clear consensus when it came to the type of product that is best suited to quick commerce: 62 percent of retailers and 87 percent of representatives from other industries said grocery and luxury items. This was followed by takeaway food (55 percent and 80 percent) and health-care and cosmetics (52 percent and 67 percent).
- When asked about the importance of quick commerce in the future, 34 percent and 42 percent expected it to become the delivery standard for specific product ranges, such as fresh produce. There is also customer expectation that this will happen. However, one participant added that “quick commerce is unlikely to play a significant role for other product types, as it is either too expensive or too difficult.” Another raised concerns, stating that “quick commerce is only viable if it is built on an economically stable base. Personally, I do not see evidence of this right now. Because of any comparison with Amazon, costs must remain low.”
- Of the retailers surveyed, 38 percent felt that quick commerce is not (currently) relevant for their companies. Only 7 percent use a quick commerce model and 24 percent are open to it.
- While 48 percent of the retailers largely agreed with the statement that consumers will expect quick commerce delivery models in the future, 32 percent were less convinced. In all, 42 percent believed that quick commerce is not economically viable. The majority (also among the other industries) furthermore felt that quick commerce will remain limited to densely populated metropolitan areas. The survey also made clear that further examination of suspected barriers to quick commerce is needed.
- When asked about the central challenges facing quick commerce, the majority of participants mentioned availability of goods close to customers, reliable and timely delivery, and economic aspects. These were followed by staff availability, sustainability and access to urban warehousing. According to the experts, social sustainability is also important (wage level vs item price), as are working conditions and safety when it comes to automation.
- A total of 52 percent of retailers stated that their companies have not yet begun to consider concepts for quick commerce systems. Fourteen percent are in the planning stage and 17 percent are currently testing. One participant mentioned “unsuccessful piloting in the past” and felt that micro-hubs are likely only suitable for niche players. A further company stated that it had only trialled same-day delivery.
- When asked whether they needed a network of inner-city hubs to implement quick commerce, 34 percent of retailers answered in the negative, stating that retail stores can also be used as warehouses close to customers. For 21 percent, it is clear that a range of centres of various sizes that are well distributed throughout the city is necessary for the success of quick commerce. One participant added the following comment: “In addition to local centres, it would be a good idea to have a network of locally based retailers.” (Fig. 3)

Need for a network of inner-city hubs to implement quick commerce

(Fig. 3)

Share in percent



n = 29 (retail), n = 45 (other industries)

Source: EHI

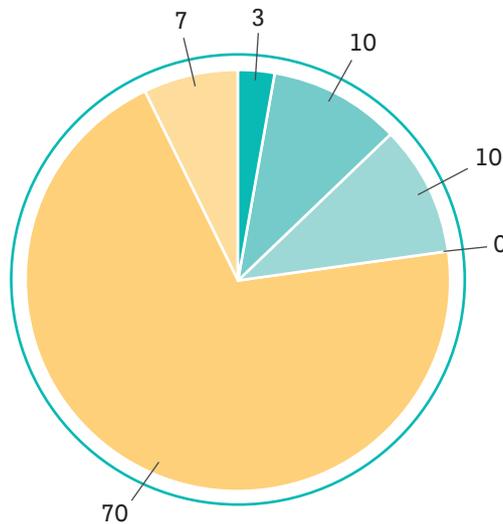
- In terms of the minimum space needed for a micro-hub to be profitable, 70 percent of the retailers stated that it was not possible to make generalised statements, as far too many factors are at play. Sixty-four percent of the respondents from other industries also agreed with this. One respondent wrote that “it is not about the space but the density.” There is a big difference between person-to-goods processes, which require aisles

to be kept clear, and high-density goods-to-person processes that use dispensing stations. Another participant supported this with the following practical example: “For SIM cards, a container the size of a shoebox is more than enough.” (Fig. 4)

Minimum space needed for a quick commerce micro-hub to be profitable
(Fig. 4)

Share in percent

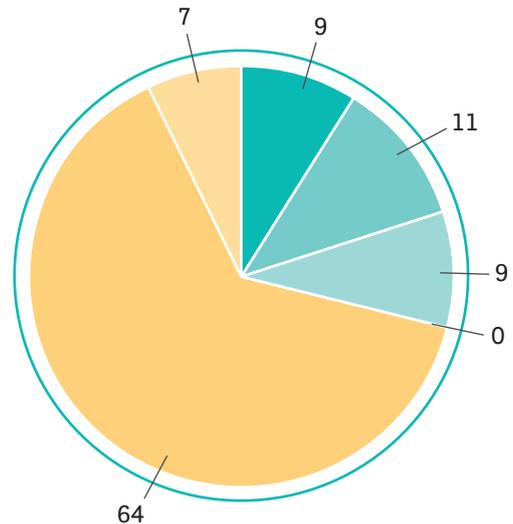
Retail



- At least 100 sqm
- At least 250 sqm
- At least 500 sqm
- At least 1,000 sqm
- Profitability does not depend on space or no comment possible
- Other

n = 29 (retail), n = 45 (other industries)
Source: EHI

Other industries



- At least 100 sqm
- At least 250 sqm
- At least 500 sqm
- At least 1,000 sqm
- Profitability does not depend on space or no comment possible
- Other

n = 29 (retail), n = 45 (other industries)
Source: EHI

- In all, 42 percent of retailers and 56 percent of representatives from other industries agreed with the statement that existing warehouse structures can be redesigned (for example, retrofitted) as micro-hubs. However, 24 percent and 26 percent believed that quick commerce requires new structures. A further 31 percent of retailers were unable to comment on this statement. Participants were in agreement that “modern warehousing concepts, such as fully or partially automated solutions, can significantly increase picking speed.”
- In response to the question “Make or buy?” with respect to logistics infrastructure for quick commerce, 38 percent of retail companies agreed that it is best to use the services of logistics providers specialised in quick commerce. For 28 percent of

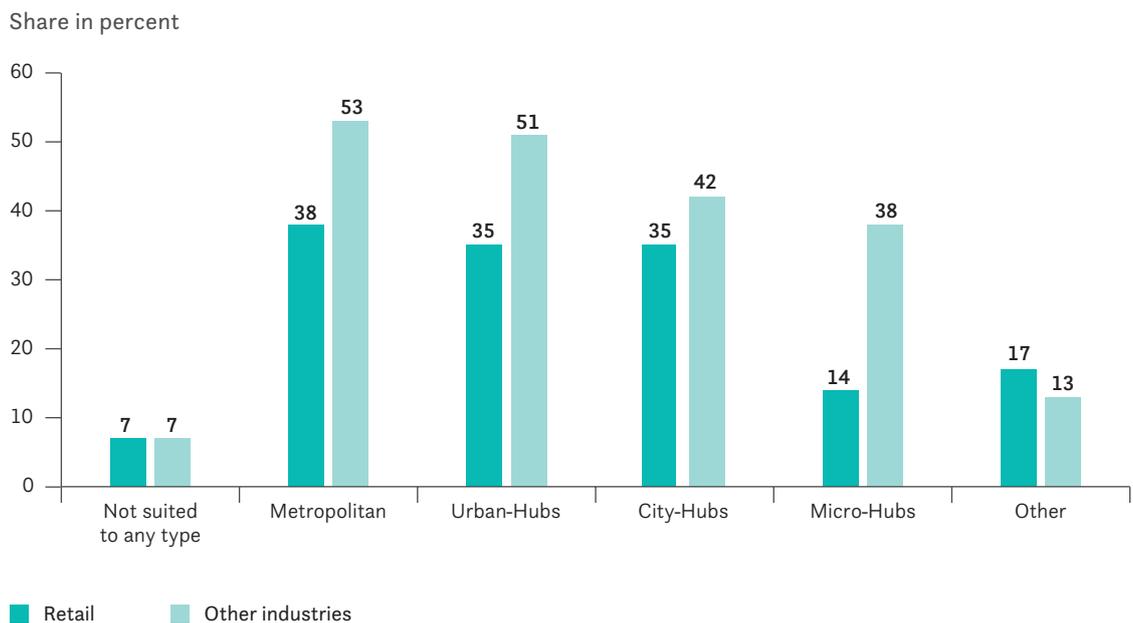
- respondents, this was in the form of established CEP/3PL providers. One respondent was in favour of “Make (pick) AND buy (ship)”. This statement was echoed by another person who said that “micro-hubs can be set up by retailers when customer traffic drops, and specialised service providers, perhaps as part of an open system for multiple retailers, can provide delivery.”
- Only 10 percent and 11 percent of respondents believed that micro-hubs are too small for automation. Instead, 73 percent and 76 percent stated that it depends on the intended throughput.
- When asked which type of hub (metropolitan, urban, city or micro) is best suited to automated processes, there were clear differences of opinion. Survey participants from other industries were

more convinced of the benefits of automation than respondents from retail. This was particularly true when it came to micro-hubs. Only 14 percent of retail companies were in favour of automation, compared to 38 percent from other industries. However, there must be a favourable cost-benefit ratio. Participants remarked that “whether automation is successful or not depends neither on the location nor the size of the facili-

ty.” Another person also agreed, writing that “automated processes can be implemented in any facility, regardless of the size – even in centres as small as a storage container.” According to them, what is instead important for profitability is a sufficiently high throughput of goods (Fig. 5).

Suitability of automation by hub type

(Fig. 5)



n = 29 (retail), n = 45 (other industries), multiple answers possible

Source: EHI

- According to the respondents, the minimum space needed to implement automated processes depends on the technology used. This includes conveying, storage, lifting, sorting, robotics and AGV/AMR (automated guided vehicles/autonomous mobile robots) (see table below). Interest-

ingly, though, retail companies often provided much higher minimum space requirements than representatives of other industries (Fig. 6).

Minimum size of micro-hub to need conveyor systems/automation

(Fig. 6)

In square metres

System	Retail		Other industries		
	Number of responses	Range	Number of responses	Average	Range
Conveyor for containers	4	100–10,000	11	1,045	100–3,000
Conveyor for boxes	6	500–10,000	10	1,075	100–3,000
Conveyor for pallets	3	1,000–10,000	10	2,685	100–5,000
Storage for containers	4	100–10,000	10	1,845	100–10,000
Storage for boxes	5	250–10,000	10	1,740	100–10,000
Storage for pallets	3	1,000–10,000	10	2,150	150–10,000
Lifting equipment	4	200–10,000	10	2,445	100–10,000
Sorting equipment	3	1,000–10,000	10	1,085	200–10,000
Robotics	4	200–10,000	10	1,100	200–10,000
AGV/AMR	3	400–10,000	10	3,400	500–12,000

n = 29 (retail), n = 45 (other industries), multiple answers possible

Source: EHI

Automation as a Key to Unlocking Quick Commerce

Micro-hubs could play a key role in future mobility and logistics concepts. First and foremost, however, they are likely to continue as distribution centres for food and convenience products as well as other small-volume items in the fast-moving consumer goods (FMCG) category. Micro-hubs provide a means for both delivery service providers and retailers to achieve environmental goals and meet quick commerce needs. Whether companies offer click & collect, home delivery or both, they can improve the accuracy, speed and, ultimately, profitability of their services.

(Partially) automated goods-to-person processes can further help companies reach their environmental and business goals. They can speed up mi-

cro-fulfilment and order processing, significantly reduce errors and spare employees from difficult manual labour. The rise in quality means consumers are more likely to go on successful customer journeys and overall customer satisfaction will grow. With the help of software, it is also possible to carry out sequencing tasks overnight or prepare items for delivery. This is not only limited to the small parts segment. There are also solutions for palletised goods, such as fully automated high-density storage and retrieval systems.

Systems Solutions for Micro-Fulfilment

The growing number of systems providers and equipment suppliers is proof that micro-hubs are not too small for automated picking and storage technologies. The Robotics for Retail Initiative (R4R) can attest to this. EHI is currently working with this initiative to study automation, robotics and AI in retail logistics and at the POS. Its members include AutoStore, Interroll, SSI Schäfer, Vanderlande and TGW.

The Interroll Group, for example, offers modular, flexible and scalable material handling solutions

for picking, conveying, sorting and storage. These include the modular conveyor platform (MCP) and sorting solutions such as split tray sorters and vertical crossbelt sorters. Interroll also offers solutions for pallet handling. Interroll's range of technology is highly productive, space saving, energy efficient, easy to maintain and produces low noise levels when in operation.

From Single Use to Joint Use?

The survey participants are not the only ones talking about cooperation, and experts also see the merit in it. For example, Patrick Kessler, Managing Director of the Swiss Trade Association, wrote an article for the Swiss trade publication LOGISTIK. In it, he advocates better use of existing spaces by encouraging cooperation in logistics. Automated picking and storage systems can furthermore be used to increase warehouse density and all of this can be done within the scope of labour regulations.¹¹

However, for companies to make joint use of a micro-hub, they must see each other as more than just competitors and follow more than just their own interests. Instead, they must work together on a logistics level and even share data with one another. This applies equally to CEP service providers and retailers, who would use the central location to supply goods to both end customers and brick-and-mortar stores.

Another question is whether to make or buy. The answer requires careful consideration of the costs,

resources and expertise involved. It could be worth outsourcing certain tasks to external logistics service providers with the right specialisation and infrastructure. However, efficient management processes must be in place¹²

The suggestions of two participants quoted earlier in this study could provide an indication of a possible solution that would benefit all participants. “Make (pick) AND buy (ship)” and “Hubs can be set up by retailers when customer traffic drops, and specialised service providers, perhaps as part of an open system for multiple retailers, can provide delivery.” This is similar to the cooperation model outlined above.

“If you want to take e-commerce seriously, you also need to take micro-hubs seriously. There is far more than meets the eye.”

Andreas Kruse

Director of Business Development EHI

¹¹ See Kessler, Patrick: „Gute Logistikflächen? Nehme ich!“ in LOGISTIK, Issue 01/2022, MedTriX Group AG (ed.), Basel

¹² <https://www.tcw.de/beratungsleistungen/logistikmanagement/make-or-buy-optimierung-der-logistischen-leistungstiefe-230>

Micro-Hubs – Here to Stay?

The Covid-19 pandemic was one of several recent developments that caused online sales to boom and new business models, such as quick commerce, to emerge. Now, major brick-and-mortar food retailers are getting in on the action and teaming up with express delivery services.

For example, Rewe sells products via its online store and works closely with Flink, a start-up that delivers goods to customers by cargo bike. Likewise, Edeka owns a share of the online supermarket Picnic, which in turn offers products from Edeka's range.¹³

Nevertheless, there are still a few bumps in the road. For example, *Lebensmittelzeitung*, a weekly German publication for the food industry, reported that at the beginning of February 2022 Rotterdam joined Amsterdam in (at least temporarily) banning new dark stores in the city centre. This was the result of resident complaints about blocked footpaths and roads.¹⁴ In Germany, however, Uber Eats has only just entered the market after Delivery Hero left and, by the end of 2022, it intends to expand its online delivery service to more than 60 cities around the country.¹⁵

However, sentiment is quickly changing, and, although customers still expect to receive their goods quickly and reliably, same-day delivery is no longer as attractive. For retailers, this is due to high costs and logistical difficulties. For consumers, however, sustainability is becoming more important.¹⁶ While quick commerce and centrally located mi-

cro-hubs can offer a greener alternative, it appears consumers are rethinking their priorities, and delivery times under 15 minutes are no longer the be-all and end-all they once were. As a result, delivery services are increasingly dropping this option.¹⁷

So was it all just hype? Or are micro-hubs really a last-mile game changer? Unfortunately, we can offer no definitive answer at this point in time. Nevertheless, the fact remains that micro-hubs provide a means of achieving both business and environmental goals by making last-mile deliveries greener and more efficient. From a strategic point of view, businesses should also be focussing on (partial) automation. That would take the pressure off warehouse employees and order pickers, lift performance, enable high-density storage and improve the quality of deliveries.

Businesses should consider setting up an efficient network of distribution centres inside and around major cities to optimise routes and handling times. Finally, repurposing vacant stores into micro-hubs could attract people back into shopping areas that are otherwise not receiving the foot traffic they need. This would allow customers to easily pick up their online orders and potentially revitalise the once-thriving brick-and-mortar retail industry.¹⁸

¹⁶ <https://www.mm-logistik.vogel.de/nachhaltigkeit-schlaegt-same-day-delivery-a-1090124/>

¹⁷ <https://click.mc.lebensmittelzeitung.net/?qs=42ea28cdeffb5bd75ca9c0b891874ab10924834e135b5776bc9fc3abe9ff0b876611b1885e41d1741e797988036c6e83d58712a86819f7cc66b7c6ae3c3c09e8>

¹⁸ <https://kompetenzzentrumhandel.de/micro-hubs-fuer-den-handel/>

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ABOUT EHI

The EHI Retail Institute is a research and consultancy institute for the retail industry and its partners, with around 80 employees. The international EHI network comprises some 850 member companies from the retail, consumer goods and capital goods industries, along with service providers. EHI gathers key performance indicators for brick-and-mortar and online retail, identifies trends and works out solutions. The company was founded in 1951. Its President is Markus Tkotz, the Managing Director is Michael Gerling. GS1 Germany is a subsidiary of EHI and the German Brand Association and coordinates the allocation of Global Trading Item Numbers (GTIN, formerly EAN) in Germany. In cooperation with EHI, Messe Düsseldorf hosts EuroShop, the world's leading capital goods trade fair for the retail industry, EuroCIS, where the latest products, solutions and trends in IT and security technology are presented, and the China-in-store in Shanghai for the Asian retail industry.

Further information about EHI is available online: www.ehi.org

ABOUT THE RESEARCH UNIT

The logistics research unit follows and studies all current and traditional topics related to retail logistics. These include (new) applications of artificial intelligence in supply chain management in retail. There are a range of ways AI can optimise logistics. For example, it can be used to generate forecast data to better plan and control processes.

ABOUT OUR PARTNER

The Interroll Group is the leading global provider of material handling solutions. The company was founded in 1959 and has been listed on the SIX Swiss Exchange since 1997. Interroll provides system integrators and OEMs with a wide range of platform-based products and services in the following categories: rollers, drives, conveyors & sorters as well as pallet & handling solutions. Interroll solutions are in operation in express and postal services, e-commerce, airports, the food and beverage industry, fashion, automotive sectors, and many other manufacturing industries. Among the company's end users are leading brands such as Amazon, Bosch, Coca-Cola, DHL, Nestlé, Procter & Gamble, Siemens, Walmart and Zalando. Headquartered in Switzerland, Interroll has a global network of 35 companies with sales of CHF 640.1 million and around 2,600 employees (headcount as of December 31, 2021).

Further information can be found at www.interroll.com

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