

HUPMOBILE



Feasibility Study Logistics Hub Altona

**HUPMOBILE – Holistic Urban and Peri-urban Mobility
2021**

Imprint

This publication has been developed within the European project **HUPMOBILE – Holistic Urban and Peri-urban Mobility**, co-funded by the European Regional Development Fund.

The HUPMOBILE consortium consisted of the following partners: Aalto University (FI), Free and Hanseatic City of Hamburg (DE), City of Riga – Municipal Agency "Riga Energy Agency" (LV), City of Tallinn (EE), City of Turku and Union of the Baltic Cities - Sustainable Cities Commission (FI), Royal Institute of Technology (SE), ITL DIGITAL LAB (EE)

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union.

Contract: HUPMOBILE – Holistic Urban and Peri-urban Mobility Project no. R105

Title: Feasibility Study – Logistics Hub Altona

Version: 03/2021

Publisher: District of Altona
Management of Public Space-MR2
Heike Bunte (Projectleader)
Jessenstr. 1-3
22767 Hamburg
Contact: heike.bunte@altona.hamburg.de

Authors: Hanseatic Transport Consultancy:
Alena Werner, Torsten Tesch, Frederica Blydt-Hansen

Cover picture: © Bildverstärker by Marc Strand

This publication is subject to the copyright of the HUPMOBILE consortium and its authors and contributors.

Project note

The EU co-funded project **HUPMOBILE – Holistic Urban and Peri-urban Mobility** (2019–2021) brings together municipalities, universities and other expert organisations in their efforts to develop a holistic approach to the planning, implementation, optimisation and management of integrated, sustainable mobility solutions in the above-mentioned Baltic Sea port cities.

The carried-out activities enable major urban mobility stakeholders such as city authorities, as well as infrastructure providers and transport providers to assess and integrate innovative mobility options into their mobility management plans and policies. The developed HUPMOBILE framework allows the planning and implementation of well-functioning interfaces and links in urban- and peri-urban transport considering the different transportation flows in the local context.

Within HUPMOBILE, partner cities plan, test and implement innovative sustainable urban mobility for both people and goods (i.e., freight, cargo logistics and delivery), which are easily adoptable for follower cities. These include greener urban logistics and combinations of goods- and passenger traffic, intelligent traffic systems-based services, tools for stakeholder participation, and new tools for transportation mobility management and Mobility-as-a-Service (MaaS).

Table of Content

1	<i>Initial Situation</i>	1
2	<i>Current Situation</i>	2
	2.1. Market Structure	2
	2.2 Development	9
3	<i>Demand</i>	13
4	<i>Potential Locations</i>	15
	4.1 Mercado Altona	15
	4.2 Mitte Altona	19
	4.3 Other Potential Locations.....	21
5	<i>Key Takeaways</i>	24
6	<i>List of References</i>	25
7	<i>Annex</i>	27
	7.1 Protokoll	27

1 Initial Situation

The growing e-commerce sector as well as high traffic density in inner-city areas cause considerable difficulties in terms of mobility and traffic management. Rush hour traffic in the morning and evening hours, lack of parking space, increasing access restrictions, and narrow time windows for deliveries in traffic-calmed inner-city locations reinforce these conditions. At the same time the demand for sustainability in terms of emissions and noise reduction increases. In order to support and develop innovative last mile delivery concepts the City of Hamburg is already carrying out a number of feasibility studies and pilot projects with different stakeholders. One of the frequently discussed approaches is the use of multiple micro-hubs for inner-city locations.

Micro-hubs are small logistical locations that are, due to the problems of transport capacity and range, a prerequisite for urban delivery on the last mile. In combination with freight bicycles or small electric vehicles like cargo bikes, micro-hubs can support sustainable logistics concepts. By the reduced number of large trucks in city centres the traffic flow and therefore the sustainability of transport improves. Two aspects are particularly relevant for the development of micro-hubs. Firstly, a suitable premise must be found that remains affordable even though it is located in the city centre. Secondly, a micro-hub benefits particularly if it can meet specific challenges of local businesses in addition to its main task of distributing goods. Therefore, the Borough of Altona wants to examine the applicability and feasibility of further micro-hubs in the district. In this context different locations were selected and analysed regarding their potential. Additionally, local stakeholders were included into this feasibility study as a workshop was conducted to focus on the logistical challenges in specific areas.

2 Current Situation

1.1. Market Structure

Due to its complex structure and the large number of parties involved in the process, delivery logistics in conurbations such as Hamburg initially require a more detailed definition of the relevant market. The focus is subsequently directed towards the area of courier, express and parcel (CEP) shipments. It is important to mention that there is no legal or generally accepted definition for the three sub-markets and therefore a clear segmentation is only possible to a limited extent¹:

- Courier consignments are characterized by their permanent personal accompaniment and the associated possibility for the courier to access the consignment at any time in order to make disposition decisions. Due to the strict time constraints a consolidated delivery is not suitable for courier transports.
- Express shipments are characterized by their fixed, usually guaranteed delivery time. In contrast to courier services, express shipments are not transported directly, exclusively, and personally, but via transshipment centres like parcel shipments. Due to the high time-sensitivity, delivery via alternative transport routes is rather unrealistic.
- Parcel shipments are characterized by longer delivery times and can be clearly delineated from the courier and express segment. Compared to other services, parcel shipments are limited in size and weight of the shipments. The German parcel market is dominated by five major system providers DHL, UPS, GLS, DPD and Hermes.

In general, the distribution structures in CEP logistics are mapped with a multi-level supply system. Large locations, which are generally well connected to different means of transport and in comparatively favourable locations (in terms of rent or purchase price), are supplemented by distribution centres close to the city centre and increasingly also by inner-city centres. Common terms such as fulfilment, service or distribution centre, hub and depot describe various "production locations" in CEP logistics, which can be distinguished from one another mainly by their function and equipment. They are supplemented by additions such as "mega", "regional", "micro", "mini" or "urban" due to their size and location. Attempts to categorize micro-hubs show how many individual categories partly overlap or are characterized by the specifics of individual market participants. In view of the existing necessity for new, inner-city logistics solutions and the expected conflicts of objectives in different locations as well as user-specific characteristics, micro-hub profiles should not be too narrowly defined. In the following, the specifications of micro-hubs are explained and illustrated with operating best practices. It must be mentioned that the different best practices can be assigned to different specifications. Efforts were made to include as many different examples as possible, with a focus on Hamburg and Germany-wide projects. The following pages present the various conceivable forms of micro-hubs. The distinction is made between: Mobile or Stationary; Single-, Multi-user or White-Label Solution; Greenfield or Brownfield; Cost Efficiency vs. On-Site Flexibility and Logistics Location or Service Point.

¹ HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): Micro-Hub-Standorte in Hamburg

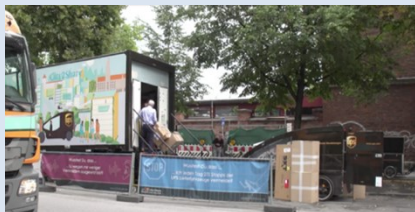
2.1.1 Mobile or Stationary

In general, micro-hub solutions can be distinguished between passive solutions (mobile hub without vehicles) and active solutions (mobile hub with own drive). Variants of passive solutions include trailers, containers, or swap bodies of various types. The simplest variant for an active solution, which is already frequently used today, is the exchange of consignments between two delivery vehicles which stand, for example, rear to rear on a traffic route and exchange consignments within a few minutes in order to optimize the respective delivery routes.

Every morning, the trailer, container, or swap body is being transported to a specific location in the city centre. The final distribution is usually carried out during the day by foot, load wheel, cargo bikes or other sustainable solutions like electric vehicles. While passive mobile solutions are temporarily well suited to occupy unused space in the sense of a pop-up store, a long-term and comprehensive approach results in considerable conflict potential in the inner-city area (monument protection, interference with the cityscape, etc.). Stationary solutions offer a possibility of permanently integrating a fixed point into the existing operational concept. On the other hand, service providers are also confronted with the lack of availability of suitable locations due to competition for more profitable uses. Potential locations for stationary micro-hubs are basically unused premises with a corresponding favourable location and connection quality. These include for example retail spaces, basements, multi-story car parks etc. Individual characteristics and minimum requirements for a micro-hub are undisputed²:

- Area: minimum of 15-20 m² with a normal ceiling height
- Barrier-free and conflict-free access: at ground level or with a freight elevator
- Possibility for loading and unloading in the access area: conflict-free arrival as well as departure and holding possibility for delivery vehicles

Best Practice Examples



Mobile: In the morning, UPS swap bodies are loaded at an outer-city fulfilment centre and driven into Munich's city by truck. Afterwards several load bicycles at the mobile stations are used to deliver the parcels to the customer. In the evening, the swap body is picked up. The whole logistics process helps to reduce traffic within the city.³



Stationary: A multi-user micro-hub was opened by *Hochbahn*, *REWE*, *Hermes*, *UPS*, and *DHL* in an old bank branch in Hamburg Mitte. *Hamburger Hochbahn* (usually public transport operator) is involved as the neutral operator. The project runs until the end of 2021 and is a sub-project of the *Reallabor Hamburg*.

² HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): Micro-Hub-Standorte in Hamburg

³ DVZ (2018): UPS baut Citylogistik in München aus

2.1.2 Single-, Multi-user or White-Label Solution

Single-user approaches have the advantage that they can be individually tailored to the needs of the respective player in the corresponding delivery district. Extensive coordination with other market participants is not necessary. However, the search for available space for the individual micro-hubs is often difficult due to the required size and costs. Therefore, the scalability of this approach is only given to a very limited extent. To benefit from synergies, the establishment of a multi-user micro-hub solution is often being discussed.⁴ These solutions are jointly used by competing CEP service providers to bundle deliveries and thus transport routes. Although this approach has several advantages, such as sharing resources, e. g. space, it is still a closed shop which means that the offer is not accessible to third parties in the form of additional service providers and there is no consolidation between the different service providers. A White-Label solution would include the cross-service provider delivery where the operator would also include an integrated system for all parcels. It would therefore be possible for retailers to include their shipments. To ensure an integrated solution, logistics would have to be provided by a neutral developer and left for temporary use by various market participants.

Best Practice Examples



Single-Use: Single-user approaches have already been piloted by the various CEP service providers for some time in various forms. One of the most prominent examples is the UPS model project in Hamburg in the district *Neuer Wall* developed in 2014.⁵



Multi-User: A multi-user approach is being tested in Berlin within the *KoMoDo* project since 2018. The fulfilment centre consists of seven containers and is being used by the five major CEP providers. The operator is the municipal *Berliner Hafen Lagehausgesellschaft*. The containers serve as a micro-hub for each of the companies involved, with traffic, storage, and logistics areas in between.⁶



White-Label: In 2018 the shopping centre *City-Center-Bergedorf* opened an own multi-user parcel shop *Ein-Treff-Punkt* where shoppers can pick up their shipments while taking care of their everyday business. Four of the big CEP service providers are already taking part but it is also possible for additional service providers to be integrated.⁷

⁴ Stadt Würzburg (2018): Abschlussbericht Teilkonzept Urbane Logistik im Rahmen des Green-City Plan Würzburg

⁵ HSBA Hamburg School of Business Administration (2017): Last-Mile-Logistics Hamburg – Innerstädtische Zustelllogistik

⁶ KoMoDo (n. d.): Mikro-Depots und Lastenräder - klimaneutral auf der letzten Meile

⁷ CCB Bergedorf (n. d.): CCB-Paket-Service

2.1.3 Greenfield or Brownfield

Greenfield and brownfield solutions differ in their given infrastructure. While greenfield solutions are built from scratch, brownfield solutions are built on existing building structures. Greenfield solutions (i. e. new construction of inner-city logistics facilities) are therefore more cost-intensive to build compared to Brownfield solutions but can be specially adapted to the necessary needs and conditions. It is to be expected that new construction projects will probably be the exception although the consideration of these spaces during the development of new projects appears much more realistic for the given requirements. In order to meet the growing demand for micro-hub space, public debate has repeatedly called for corresponding requirements to be anchored in the approval and application procedures for new construction projects. The consideration of logistical space in the development of new building projects can lead to a considerable reduction of the development costs for a micro-hub. The use of already existing real estate (so-called brownfield solutions) offers a possibly cost-effective alternative if the property is unused. Through the existing development, these offer the possibility of integrating an unused or under-utilized property, both temporarily and in the long term. On the other hand, the necessary change of use and the associated changes can also lead to a conflict with the original form of use or parallel operations, which must be considered. The intention to fill an empty room with packages leads to concerns about sufficient fire protection. In order to meet the demand for sustainable urban development, it seems to make sense to first of all scan the areas in question for already existing real estate and premises. In addition to multi-story car parks, public areas, e. g. at traffic junctions (tram and subway stations) are particularly conceivable. However, one problem that can arise in connection with the use of brownfields is the Workplace Regulation. This regulation includes, among other things, the regulation of break rooms, which should usually already be considered and planned for during the construction of rented space.

Best Practice Examples



Greenfield: Currently the *LOLA* project at a parking lot between two districts in Hamburg is being planned. The goal of the project is to integrate sustainable mobility and logistics systems as early as possible into the planning process of the future urban world including a logistic hub on the ground floor next to the community area.⁸



Brownfield: The UPS micro-hub is located on the ground floor in the parking lot *Große Reichenstraße*. Additionally, to the small storage room, the car park is being used as a storage space for the two electric cargo bikes. Overnight they can be safely parked and charged.⁹

⁸ Spine Architects (n. d.): *LOLA Locals Logistic Lab*, Hamburg

⁹ HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): *Micro-Hub-Standorte in Hamburg*

2.1.4 Cost Efficiency vs. On-Site Flexibility

The establishment of a micro-hub always means an additional interface in the form of a turnover or consolidation point. This results in an extra investments and operating costs for the location itself, as well as further effort due to the need to first load all shipments manually and then unload them from the micro-hub into the delivery vehicle. With a mobile micro-hub solution, at least one of the two movements are eliminated. The added pressure on profitability in an already low-margin market environment may also have a negative impact on the acceptance of a micro-hub solution if it is not possible to save the emerging costs elsewhere.¹⁰ The example of the UPS model project in Hamburg illustrates on the one hand the relatively high effort involved in repeatedly picking shipments. On the other hand, it has been shown that sorting processes in the micro-hub can only be carried out to a limited extent due to tight time frames, further space requirements and the lack of on-site experience of the delivery staff. An alternative to picking at the micro-hub is the use of container systems in connection with an advanced destination-specific picking. This means that no additional reloading of individual shipments or packages at the micro-hub location is necessary. However, all vehicle types as well as the conditions of the micro-hub must also be adapted to the configuration of the container type. In view of the large number of new systems that have been launched on the market by different manufacturers in recent years, market penetration depends not least on the compatibility of the systems with each other. With a view to further penetrate the market of corresponding container systems, it seems conceivable that logistics structures will continue to change. Furthermore, a route design in form of an extended milk run design using cargo bikes and including decentralized loading points will become more important.

Best Practice Examples



Commissioning on-site: During the *UPS* pilot at *Neuer Wall* in Hamburg the shipments were picked both at the central depot location (for transport to the delivery district) and in preparation for the delivery trip using a load wheel or sack truck on site.



Without commissioning on-site: The company *Rytle* offers comprehensive delivery concepts. The illustrated cargo bikes are only one component of the concept. The boxes are commissioned in advance and can be transported to the inner-city space via the corresponding container solutions.¹¹

¹⁰ HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): Micro-Hub-Standorte in Hamburg

¹¹ Rytle (n. d.): Rytle - the Smart Move

Excursus: Operator Model

Depending on the specifics of the location as well as the structure and number of potential users, different investment and operating models are conceivable for individual micro-hub locations. In principle, there is a difference between public and private operator solutions. In the course of establishing micro-hubs as "enablers" for new logistics concepts, the role of the public sector is increasingly being discussed by economic stakeholders and the public sector itself.

The central question is whether the supply of goods is part of a general interest service to reduce specific inner-city problems such as high levels of congestion and emissions caused by increasing motorised traffic and should therefore be encouraged by the public sector. Examples from other cities show that a politically motivated and publicly supported development of a micro-hub network can help to accelerate the implementation of alternative logistics concepts on the last mile.¹² The reduction of motorized traffic and the resulting decongestion on the roads as well as the reduction of CO₂-equivalent emissions are decisive factors. This could mean that the public sector, either on its own or with recourse to an existing urban society, buys and develops available logistics properties to ensure that the growing problems of parcel delivery can be counteracted. It is to be assumed that if the public sector decides to make properties available for the market they should be offered at comparatively moderate prices. The intention to make a profit will play a secondary role as the public sector would support the testing and start-up. However, this does not mean that they would renounce profits in the long term. It must be considered that the granting of the rights to use the properties must take place in a formal procedure and should be linked to certain conditions (e. g. use of load wheels or low-emission trucks to reduce emissions).

The implementations of private solutions are presumably faster but also involve higher costs for the micro-hub users, especially if the development and provision is carried out by a private logistics property developer. However, it is conceivable that more cost-effective hubs could be created by the private sector. This is likely to be the case above all if synergies can be realized between the local stakeholders. One example is the possible cooperation between different CEP logisticians with supermarket chains, mobility service providers, petrol stations or shopping centre operators.

¹² Micro-Hub.eu (2020): Dann klappt's auch mit der letzten Meile

2.1.5 Logistics Location or Service Point

Within the scope of conventional inner-city delivery, items that cannot be delivered directly to the customer are brought to a decentralized service point at the end of every tour. With the exception of DHL (post offices), providers rely on the presence of third parties (usually small retailers: kiosks, tobacco, newspaper shops, dry cleaners, etc.). These are also used for returns and can thus already be regarded as small depot or hub locations, which are, however, partly overstrained by the "parcel flood" due to a lack of parking space and delivery zones and competition with the original business purpose. A central question in this context is how delivery patterns will change and whether in the future a large proportion of items will have to be delivered directly to the customer. Many items cannot be delivered directly to the recipient, especially during normal core working hours (nine to five on working days). This results in either a new delivery attempt or a transfer to a service point. Some providers are thinking about offering home delivery as a premium service and increasing the price for the delivery to the house. This is accompanied by the increasing offer of different delivery options. In addition to the classic delivery option "at home", there is now also the option of collection at a service point. These service points can be located in places that customers pass through on a daily basis anyway, e.g., retailers, gas stations, or subway stations.

Best Practice Examples



Logistics Location: Netherland's city logistic the Nederland Post is using a floating depot for the storage and delivery to support emission-free city logistics. The aim is to deliver all parcels emission free until the end of 2030.¹³ Furthermore, Nederland Post is using special cars to sort parcels and makes their buildings and facilities more sustainable.¹⁴ The municipality of Amsterdam forces companies to deliver to hubs or with zero emission.¹⁵



Service Point: The GLS Parcel Shop in Düsseldorf illustrates that both functions (hub and service function) can be bundled at one location. In addition to delivery with electric bikes, several electric trucks have been supporting delivery from the micro-hub since the beginning of 2020.¹⁶



Mobility Hub: The Oslo City Hub is one of Oslo's first low carbon logistics centre. As part of the electric city DB Schenker supports the city logistic with electric cars and e-bikes. The mobility hub is constructed out of containers.¹⁷

¹³ Ploos van Amstel (2020): Green Postal Day: PostNL announces emission free last-mile by 2030

¹⁴ Tuinhout (2018): The journey: floating depot, light electric vehicles (e-cargobikes), microhubs and public procurement

¹⁵ CityLab (2018): City Deliveries using micro-hubs and innovative freight bikes

¹⁶ Logistik Heute (2019): Citylogistik: GLS elektrifiziert Zustellung in Düsseldorf

¹⁷ Ploos van Amstel (2020): Green Postal Day: PostNL announces emission free last-mile by 2030

Excursus: Multi-User Smart Locker Solutions

A suitable example for a Smart Locker Solution is *Hamburg Box*, a service point where recipients can pick up deliveries from currently three of the five big service providers. The possibility of using the Hamburg Box as a delivery also supports the plan to reduce the distances on the last mile. Hamburg is one of the first cities to link packing stations and parcel services: The *Hamburg Box* systematically supports transport hubs at train stations and enables sustainable package reception.¹⁸ As the lockers are operated in collaboration with the *Deutsche Bahn Smart City* they are located at approximately S-Bahn and U-Bahn stations. Currently 21 lockers are being operated around Hamburg and they are accessible 24/7 for the end user and service providers.¹⁹ *Hamburg Box* lockers can be acquired modularly. The maximum height is 2 meters. The width depends on the number of modules selected.

Kiekmo is one of Hamburg's local provider for smart locker solutions. Kiekmo offers lockers which are located within *Hamburger Sparkasse* branches and can be reserved through an app. The lockers are free to use and accessible 24/7 for the end user. Throughout Hamburg, you can choose from 18 lockers, each with four large and seven medium compartments.²⁰ Synergies with companies like *Frischepost* (digital shop for farm product delivery) use the lockers to deliver their food boxes into *Kiekmo* lockers.²¹ *Kiekmo* lockers are comparatively smaller than the Hamburg Box as they are two meters high, one meter wide and with open doors one meter deep.

2.2 Development

2.2.1 Germany

The CEP industry in Germany is a rapidly growing market. The *German Parcel and Express Logistics Association (BIEK)* estimates in their 2020 CEP market study that 3.6 billion shipments have occurred in 2019. This corresponds to around 2 million commercial customers daily supplies. An overtime analysis indicates that the volume of CEP shipments has almost doubled since 2000, with the number of CEP shipments expected to rise to 4 billion by 2021. Large federal states such as North Rhine-Westphalia (21.7 %) and Bavaria (17.1 %) take the biggest shares. On average, 38 parcels are delivered to each German every year.²² The majority of consignments are parcels. Their share of 84.2% clearly exceeds the combined 15.8% share of express and courier consignments. The shipment volume of the parcel market alone grew by 4.3%.²³ Primarily due to the high growth dynamics in the parcel market

¹⁸ Hamburg Box (n. d.): Die Hamburg Box: deine flexible Abholstation am Bahnhof

¹⁹ ParcelLock (n. d.): Moin Moin! Hamburg Box

²⁰ Kiekmo (n. d.): Ein kostenloser Service für alle Hamburger

²¹ Kiekmo (2018): kiekmo & Frischepost: Direkt vom Acker, direkt ins Fach!

²² KEP-Studie 2020 im Auftrag des Bundesverbands Paket und Expresslogistik e. V. and BIEK Kompendium

²³ KEP-Studie 2019 im Auftrag des Bundesverbands Paket und Expresslogistik e. V. and BIEK Kompendium Teil 5 | Mai 2018

the share of express and courier consignments has been declining slightly. Compared to the previous year the volume of CEP shipments grew by 3.8 %, the turnover by 4.4 %.

Parcel shipments are divided into Business to Customer (B2C) and Business to Business (B2B) deliveries. 45 % of the shipments in the German CEP market refer to the B2B sector. Almost 60 % of the branches in Germany use CEP services daily. In the future, however, it is expected that the B2B market will cede its shares to the strongly growing B2C market. In comparison with B2C, B2B shipments are much more cyclical. The slowdown or decline in economic growth has a much stronger impact on growth rates. Due to the weaker economic development in the second half of 2018 the growth rates of B2B shipments have increased only slightly and this is not expected to change. Occurring trends in e-commerce such as multi-channel and same-day delivery as well as the growing importance of super-market delivery services led to the fact that aspects of the integration of further players are also discussed in an extended micro-hub approach. The development of the CEP market is partly determined by the dynamics of the package market, focussing on the B2C segment. The most important driver is e-commerce. As a result of far-reaching technological developments and advantages in terms of availability, flexibility, time and costs, many products are no longer purchased in stationary retail stores but ordered online. As a result, e-commerce in the B2C segment in Germany set a new record in 2018 with EUR 65.1 billion EUR (excluding VAT). Compared to 2009, turnover of e-commerce has almost quadrupled. According to estimates by the *German E-commerce and Mail Order Association (bevh)*, turnover is expected to rise to almost EUR 80 billion by 2023.

Excursus: Covid-19 impact

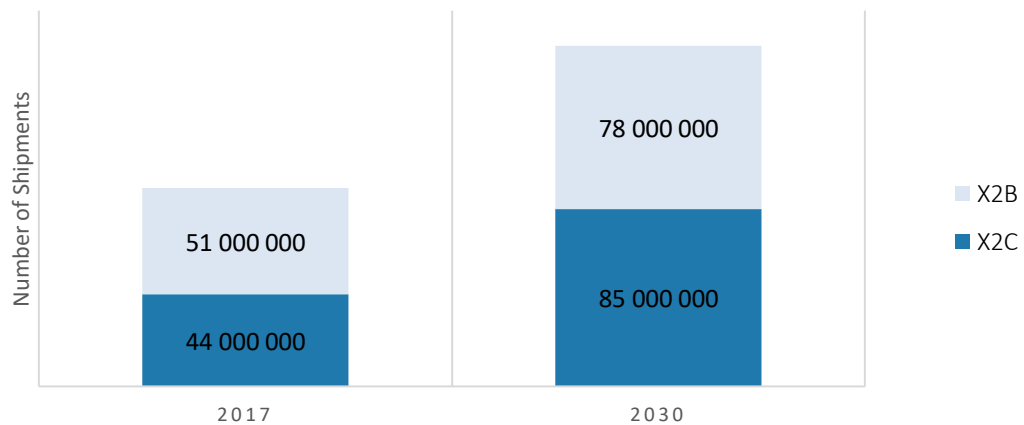
The Covid-19 pandemic has led to a dramatic increase in deliveries throughout Germany. Due to the security risks in many offices, most companies introduced home office work for the majority of their employees at short notice. This had different effects on the CEP industry. The closure of shops led to a drastic increase in e-commerce demand. In April 2020 Hermes alone recorded a 40 % year-on-year increase in parcel shipments.²⁴ The food industry in particular, which in Germany fell sharply in line with the European average, was being used by a growing number of users. However, this mainly refers to B2C deliveries, which have taken over the supply in conurbations and cities. Due to the downsized economies, B2B shipment volumes dropped significantly. It is assumed that B2C shipments will not maintain the growth. Even after the pandemic large employers such as Siemens have announced to enable home and mobile offices for a large proportion of their employees.

²⁴ Verkehrsrundschau (2020): Hermes: Rund 40 Prozent mehr Sendungen in Deutschland in April

2.2.2 Hamburg

By shipping over 90 million shipments in 2017, Hamburg's share of the national CEP shipments reached 2,9 %. With an annual average of 51 shipments per inhabitant Hamburg exceeds the German annual average of 38 shipments and thus qualifies as the federal state with the highest number of shipments.

Figure 1 Consignment forecast for the Hamburg CEP market



Source: BWVI (2019): Gesamtstädtisches Konzept Letzte Meile.

By 2030, the CEP volume in Hamburg is expected to increase to 164 million shipments. In comparison to 2017, this represents an increase of 67 million shipments within 13 years. Up to 550,000 shipments are expected per day. The rate of CEP shipments per inhabitant is expected to rise to over 80 shipments in the B2C sector. With the increase in the flow of goods and the urban population, there are growing demands on the mobility of people and goods as well as Hamburg's transport infrastructure.²⁵

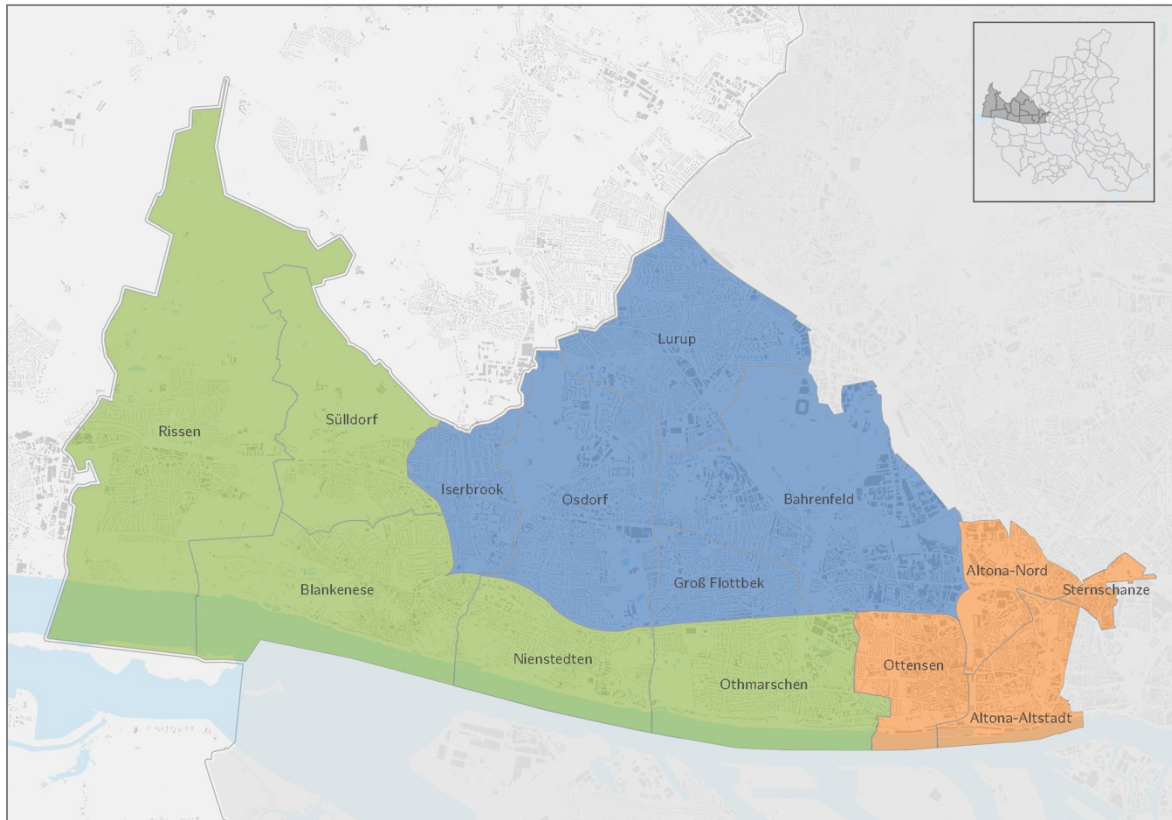
The strongest district in terms of delivery volumes is Hamburg-Mitte with more than 70 items per inhabitant and a total volume of 25 million items. The borough of Altona with its almost 275,000 inhabitants achieve a parcel volume of approx. 15 million per year. On average, this amounts to 50 packages per resident.²⁶ However, the HUPMOBILE project is not only intended to find suitable logistical solutions for the borough's residents, but above all to involve existing businesses. It should be noted that even if it is possible to determine shipment volumes for end customers, the shipment volumes of companies differ greatly. Both the size and the frequency of deliveries diverge from the retail market, as the size of the company as well as its business activities are highly interdependent. As mentioned before, the consideration of logistical space in the development of new building projects can lead to a considerable reduction of the development costs for a micro-hub. In order to meet the growing demand for micro-hub spaces, public debate has repeatedly called for corresponding requirements to be anchored in the approval and application procedures for new construction projects.

²⁵ HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): Micro-Hub-Standorte in Hamburg

²⁶ HSBA Hamburg School of Business Administration (2017): Last-Mile-Logistics Hamburg – Innerstädtische Zustelllogistik

Altona consist of 14 districts which can be grouped into three different area types²⁷:

Figure 2 Borough of Altona



Source: FHH-BZ Altona

Largely multi storey residential buildings (*Altona-Altstadt, Altona-Nord, Ottensen, Sternschanze*) are marked in orange and characterized by a high population density as well as high green spaces. The area is mainly dominated by residential buildings with less workplaces and retail stores within that area.

Mixed building structures (*Bahrenfeld, Groß Flottbek, Iserbrook, Lurup, Osdorf*) are marked in blue and are characterized by their competitive residential area and owner-operated retail. The residential areas are suitable for younger residents as well as families. The buildings vary in their architecture because of different periods of origin but all have closed roadside development in common. The public space is dominated by green areas such as parks and trees along the streets.

Mainly single houses and villas (*Blankenese, Nienstedten, Othmarschen, Rissen, Sülldorf*) are marked in green and are mainly located within the urbanization zones and in the Outer Urban Area.

²⁷ ILS – Institut für Landes- und Stadtentwicklungsforschung (2019): Gesamtstädtisches Konzept Letzte Meile

3 Demand

A workshop²⁸ with various business representatives was organized to identify the demand and specifications for a micro-hub at a favoured location. The Borough of Altona has a heterogeneous mix of smaller and larger retailers. Company representatives from one of the busiest shopping streets in the borough: *Ottensener Hauptstraße* were selected to identify logistical problems and current obstacles. As can be seen from the volume of shipments, Hamburg and specifically the district *Ottensen* have a high purchasing power, which is 10% above the German average.²⁹ It is also notable that 88% of residents live within walking distance of a grocery store (at least 400 m²).

During the workshop, the primary attention was directed to current logistical challenges. These could be classified into seven different categories: quality of delivery, cooperation, lack of space, additional traffic, costs, end customer demand and environmental impact. The identified challenges were then reviewed and discussed with the rest of the participants. The discussed issues and particularly important aspects for the smaller and larger retailers have been summarized. These statements are not transferable to all companies but should provide an indication of current potential for improvements in the Borough of Altona.

Cooperation

SMALLER RETAILERS ...	LARGER RETAILERS ...
... need a process that is as simple as possible, ideally this must be "served on a silver platter" in order to keep additional effort to a minimum.	... see the advantages (like walk-in customers) that the small retailers have for the large retailers and therefore they want to empower them.
... actions are determined by the entrepreneurial risk. The lower the risk, the higher the chances that a cooperative venture can come about.	
... should not be deterred. Therefore, the most careful and cautious handling possible is required.	

Possible approach: Introduction of lighthouse projects in which a few large and small retailers (approx. three to four parties) work together. This should draw on the well-known networks that have been identified in the past as prominent stakeholders, especially among the small retailers.

Possible solution: The advantages of cooperation must be clearly communicated, especially to small retailers, and risks must be directly addressed and discussed. The economic advantages and the benefits for the smaller retailers must be emphasized. In addition, care must be taken to create equal conditions for all retailers and to emphasize this in communication with the smaller retailers.

²⁸ The workshop took place in June 2020 at a time the Covid-19 regulations of the City of Hamburg allowed it. Both the distance and the hygiene measures were observed accordingly. In order not to exceed the permitted number of ten participants, some colleagues were connected via video conference. An individual interview was conducted afterwards for participants who were not able to attend. The workshop results can be found in the appendix.

²⁹ Michael Bauer Research GmbH (2020): Kaufkraft 2020 in Deutschland; Freie und Hansestadt Hamburg (2018): Nahversorgungskonzept 2018 Bezirk Altona, p. 58

Online retailing and returns rates

SMALLER RETAILERS ...	LARGER RETAILERS ...
... are reluctant to set up an online retail business because returns represent too much uncertainty, as they cannot be planned for and are difficult to regulate.	... recognize the added value of online retailing. For this very reason, however, the strengthening of stationary retail is also at the forefront of their efforts.
... usually are not motivated to open an online business themselves. This motivation only arises when there is no other way.	... see high financial and time costs in returns.
... are very cautious about new and innovative concepts.	

Possible approach: Data and facts should be used. That is, if adaptation rates are high enough and small retailers can identify a new market and thus new customers, the likelihood of sharing increases.

Possible approach: A model must be created that increases the planning security of the possible micro-hub, for example, through fixed pricing.

Dealing with Covid-19 pandemic

SMALLER RETAILERS ...	LARGER RETAILERS ...
... faced major problems. Often, all employees were in short-time work, so that the owners took care of the remaining daily business themselves.	... noticed an increase in online retailing. This was the last remaining sales channel.
... had access to a dealer platform, but it was not really utilized. They did it rather by themselves (Possible reasons: too high effort or barriers like reviewing multiple PDF files too high for the owners).	... had difficulties mainly due to the extremely high volumes at the beginning of the Covid-19 period. The major retailers were also not prepared for the scale.

Commonalities

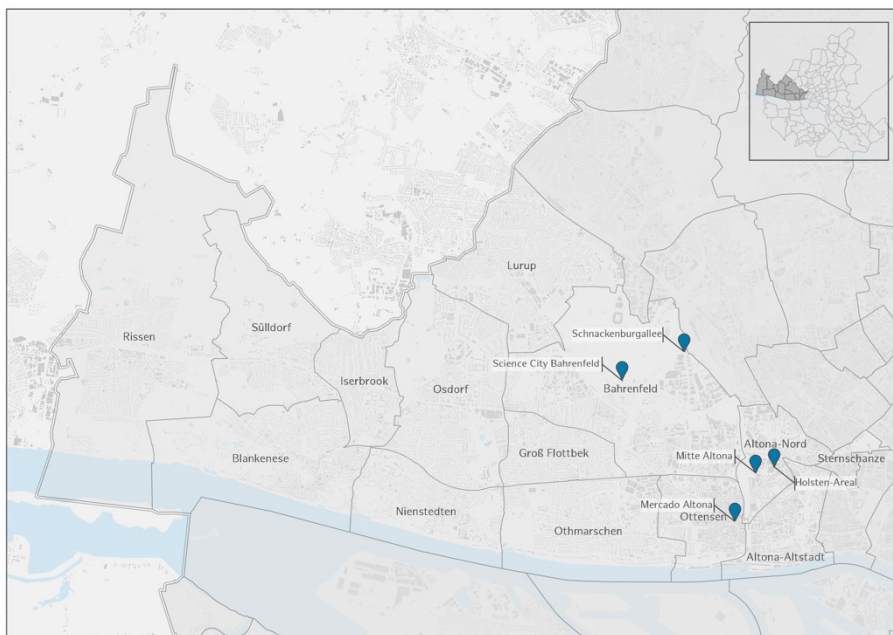
TOPIC	INSIGHT
END CUSTOMER	<ul style="list-style-type: none"> - The end customer in the Altona district has emerged from market surveys of the major retailers as particularly price sensitive. - The need and the acceptance of the residents of Altona must be in the foreground because this facilitates the implementation of such a project many times over.
FINANCING	<ul style="list-style-type: none"> - Subsidies or funding are necessary because small retailers, in particular, cannot handle any more projects without external funding.
OPERATION	<ul style="list-style-type: none"> - In order to avoid potential conflicts, a supplier-spanning (possibly external) operator is desired that can unite both small and large retailers. - Focus on topics such as billing and organization of additional employees, if necessary. - Act quickly and make it simple, e. g. use available public parking spaces.

4 Potential Locations

In the following chapter, the potential locations are briefly described and their potential for the development of a micro-hub location is discussed. The locations differ in their current project status and can therefore only be evaluated at different levels. For some locations, statements can be made about specific implementation possibilities, while for others only the potential for a micro-hub can be evaluated.

Especially newly planned urban districts and urban development projects like *Mitte Altona* and *Holsten-Areal* represent a special form for the last-mile typology. The topic of the last mile should be considered especially at the beginning of new, larger development projects in the future.³⁰

Figure 3 Potential Locations



Source: FHH-BZ Altona

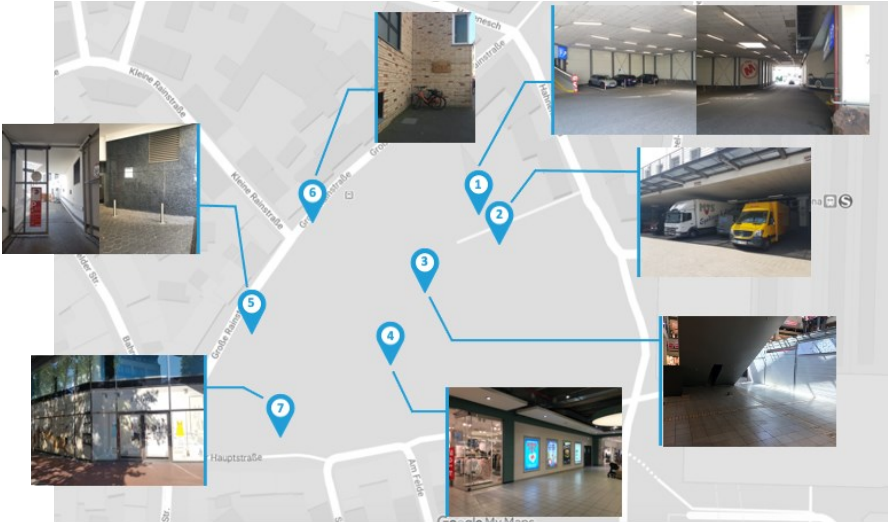
4.1 Mercado Altona

Description The MERCADO shopping centre is located on *Ottenser Hauptstraße* in Altona since 1995. It is accessible from several sides, including the pedestrian zone. With its diverse shops, five levels and the 900 m² market hall in the centre of the ground floor, the MERCADO bundles many products and services in one place in the heart of the borough. The shopping centre has approx. 400 parking spaces in its multi-storey car park, which is directly connected. Due to its central location about 100 meters from Altona railway station, the centre is very convenient for those arriving by car or not. In total, the MERCADO has space for over 60 shops. Opening hours are Monday to Saturday from 10 a.m. to 8 p.m., apart from Fridays and Saturdays until 9 p.m.

³⁰ Gesamtstädtisches Konzept Letzte Meile, ILS – Institut für Landes- und Stadtentwicklungsforschung (2019)

Last-mile self-pick-up solutions often benefit from a strong customer flow as customers can combine their everyday errands with the collection of parcels.³¹ Pick-up stations and service points can be integrated well and are often successful due to the throughput rate of existing customers. In and around the MERCADO there are various spaces to provide support for the inner-city logistical activities around the retail street. This means a total of seven areas have been identified which can be used for different inner-city logistics solutions - from mobile lockers up to the long-term use of a micro-hub with additional services.

Figure 4 Locations within the MERCADO Shopping Centre



Source: Custom Illustration

Evaluation

1 Delivery Area - Parking Spaces

Next to the exit of the parking garage of the Mercado shopping centre there is an area of about 60 sqm. Currently there are six parking spaces, which are rented to private car owners in the medium term. This area is available for a long-term solution.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • 24/7 available for end user and service providers • Optimized for delivery traffic as the shopping centre deliveries take place here - directly next to the shopping center and the supply areas • Weatherproof • Next to the parking garage and therefore storage location, e. g. for cargo bikes 	<ul style="list-style-type: none"> • Electricity supply missing • Currently still rented out • Space cannot be enlarged further

³¹ CCB Bergedorf (2019): CCB-Paket-Service



Delivery Area – Residents

To the right of the exit of the parking garage of the Mercado shopping centre there is a living complex. Currently the garbage bins of the residents are located here. This area would be available for a long-term solution.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • 24/7 available for end user and service providers • Optimized for delivery traffic as the shopping centre deliveries take place here • Next to the parking garage and therefore storage location, e. g. for cargo bikes 	<ul style="list-style-type: none"> • Currently the space is being rented to the landlord of the apartment complex • Not weatherproof



Escalator

Underneath the escalator in the middle of the shopping centre there is a vacant space. Recently, the nearby Help Desk has been relaunched. If necessary, this space will be used for expansion, but until then it remains free. For this area a quick win could be seen where e. g. a package box can be placed or a service where the advantage of the help desk employee can make a difference.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • Location in the middle of the centre and next to the Help Desk • Delivery service already in action, therefore, end user acceptance can already be tested • High pass-through rate • Weatherproof and secured within the shopping centre 	<ul style="list-style-type: none"> • Strict Fire Protection • Not 24/7 available for end user and service providers



Basement, in front of H&M

In the basement (accessible by escalator and lift) of the shopping centre, directly in front of two of the biggest stores with a high customer flow. Area is large enough for a variety of Smart Locker Solutions.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • Larger area e. g. for a bigger Solution • Weatherproof and secured within the shopping centre 	<ul style="list-style-type: none"> • Location in the basement of the store • Not 24/7 available for end user and service providers



Bicycle Parking Lot

The bicycle parking lot is located on the back side of the shopping centre on the ground floor. It is secured by a gate. Although many bicycles are parked in the area, according to the shopping centre operator, there is enough free space to accommodate a Smart Locker solution, so that customers can also pick up goods and shipments outside the shopping centre's opening hours.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • 24/7 available for end user and service providers • Optionally weatherproof • High pass-through rate through the bicycle parking space and back entrance 	<ul style="list-style-type: none"> • Electricity supply missing • Conflict potential with the tenant entrance right next to it.



Pedestrian Path

Around the corner of the bicycle parking area is a small area where a Smart Locker solution is conceivable. The area is located in a corner at the edge of the building. There are a few smaller shops and restaurants in the side street.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • 24/7 available for end user and service providers • Area belongs to the borough office of Altona therefore an implementation within this project could be executed easily • Integration of other retailers through the neighbouring shops could be possible 	<ul style="list-style-type: none"> • Not weatherproof • Not secured in any form as it is located on an open road.



Pedestrian Zone

The last area is located directly on the pedestrian zone and forms a relatively large area for a multi-user or white-label pop-up solution. In addition to the storage of parcels, a pick-up station could be introduced to link parcel shipments with purchases from the shopping centre.

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none"> • Can be rented at short notice, e. g. for a pilot project (empty until June 2021) • Large area with various delimitation possibilities 	<ul style="list-style-type: none"> • Due to the high square meter rent the space could just be used for a set time period • Not 24/7 available for end user and service providers

Recommendation

- There are many promising spots around the MERCADO centre which differ above all by their size, securing possibilities, their weather resistance, and their accessibility for customers.
- Most of the spaces are at least useful for the implementation of smart locker solutions, for some it would be possible to integrate mobile micro-hub solutions. Mobile solutions have the advantage that they can easily be implemented for a short-term or testing phase.
- A service provider-bound solution by the shopping centre operator itself is not planned for any of the areas, which means that only a white-label solution could be integrated.

4.2 Mitte Altona

Description The neighbourhood Mitte Altona has been under construction since 2015. In 2017, the first of 3,200 residents were able to move into one of 1,600 apartments. There are two neighbourhood squares, four kindergartens, a district school, and many stores for everyday needs. The three central goals which are being pursued for Mitte Altona are: future-oriented mobility offers like electro cargo bikes, a committed and lively neighbourhood and equal participation in social life for all.³²

Additionally, some offices and small businesses are available. The second construction phase, which is to create 1,900 apartments for 3,800 residents, can only be implemented if the current *Bahnhof Altona* train station is relocated. This construction phase is expected in 2027. By estimating the average shipments of the residents of Altona, it can be assumed that there are about 190,000 shipments per year in this area alone. This would definitely offer potential for the use of innovative concepts. The construction project is being carried out in this part of district to take advantage of the proximity to the railway station and thus be particularly attractive for commuters. In total there are currently three areas available for possible micro-hub solution.

Evaluation

OPPORTUNITIES	BARRIERS
<ul style="list-style-type: none">• High parcel and general cargo volume to be expected due to growing neighbourhood and multi-story residential buildings.³³• Existing neighbourhood management, which could be used for management purposes or the white-label operation and is already connected to the major stakeholders in the neighbourhood• Active Mobility is already a focus topic in the area, this could help increase the probability for the residents to use the service.	<ul style="list-style-type: none">• Limited space at the locations could lead to legal problems with workplace safety and regulation.• In order not to disturb the traffic flow, a certain number of delivery zones is necessary. In neighbourhoods with a low car density, the delivery can disrupt the flow of traffic.• Since the space is rented out by the neighbourhood management, security

³² SHP Ingenieure (2013): Mobilitätskonzept Mitte Altona

³³ ILS – Institut für Landes- und Stadtentwicklungsforschung (2019): Gesamtstädtisches Konzept Letzte Meile

- Resources such as cargo bikes for the parcel distribution are already available and could be used for a test run.

measures would also have to be contractually regulated for a micro-hub and parcel deliveries.

The mobile station *Glück Mobilstation* is located at the edge of the construction area (Hartkortstraße 109) with an entrance from the *Glückel-von-Hameln-Straße*. In its function as a future-oriented location for mobility the mobility hub has been renting out various load bikes since 2018 and advises residents on all active mobility modes and sharing offers. *ProQuartier*, a subsidiary of *SAGA*, operates Hamburg's first mobile station at *Hartkortstraße*. Today, in addition to cargo bikes, both petrol and electric cars can be rented independently of opening hours. Garage boxes with key safes are available for this purpose. The neighbourhood was built as a traffic-reduced neighbourhood, which is the reason for the parking space key of 0.4 parking spaces per flat.

Next to the mobile station, there is also a *Quartiersraum* which is being used for neighbourhood management and can be booked by interested parties for events. The *Quartiersraum* is currently closed due to the Covid-19 pandemic and thus provides a central area adjoining a small storage room which is temporarily available. Post Corona it will probably again be rented out for events and can therefore only be used for a pop-up solution. The rooms are at ground level. Although the area is relatively small the temporary use for test purposes seems realistic.

Alternatively, there is the possibility of implementing a smaller mobile container solution on the opposite open space on the railway embankment. A Smart Locker solution would also make sense in this area, where parcels that could not be delivered directly can be collected after opening hours. However, since this area is not city property, but belongs to DB, talks must be held in advance for the use of the area.

Recommendation

- The different options can be linked together in a reasonable way. While the storage room could be used for the storage of the parcels, the green area outside of the building could be used for a locker solution. In general, a combination of mobile station and logistics micro-hub appears to be an extremely promising solution, especially for new districts. A comprehensive offer could also increase the likelihood that the service will be embraced.
- For the operation, the opening of a white label through the existing neighbourhood management seems to be particularly sensible. This way, residents could request delivered packages from several providers at a certain time for their delivery or a multi-user pick-up point could be opened as an additional service for the neighbourhood.
- It is to be assumed that it will not be possible to rent out the area at normal market conditions. Due to the size of the space and the surrounding conditions, bigger micro-hubs, which will be created in combination with other uses such as the offices and small businesses that will be located at *Mitte Altona*. A further screening of the current development projects with specific stakeholders seems to be useful here.

4.3 Other Potential Locations

4.3.1 Altona Bahnhof

The companies in *Altona-Altstadt* district are divided into larger companies such as *IKEA* and *Media-Markt* as well as smaller companies, which are united by interest groups like *Große Bergstraße e. V.* The shopping centre *Mercado*, in the middle of the main street unites several smaller and bigger suppliers and shops in its centre. The micro-hub at Altona station has been operating in the basement of the central railway station in the borough since the beginning of 2020. It is operated by DB Smart City with a multi-user approach. However, due to the Covid-19 pandemic, the location quickly reached its limits. The small amount of available space in the underground warehouse and the sharp decline in public transport passengers complicated the situation. The micro-hub is currently only running in economy mode. Therefore, no detailed evaluation and analysis for the existing site was conducted in this study.

4.3.2 Holsten-Areal

Description The Holsten brewery has moved after 138 years to *Hamburg-Harburg*, thus releasing an eight-hectare area in Altona. Demolition work is scheduled to begin in spring 2021. The project focused on sustainable development within the neighbourhood combining working, living and culture. The transport network around the *Holstenareal* is already heavily utilised.³⁴ However, the capacity of these areas could become problematic. Stations such as the *Holstenstraße* S-Bahn are already very busy at peak times. With growing numbers of residents and commuters, it must be ensured that public transport continues to be available in sufficient capacities. In addition to a hotel, space is also going to be created in the neighbourhood for craft workshops and retailers. A community centre is planned for neighbourhood support. For this reason, a comprehensive mobility concept was developed for the area, in which commercial transport was incorporated into the planning.

Figure 5 Draft of the future Holsten Areal



Source: Planersocietät (2020): Mobilitätskonzept für das Holstenareal

³⁴ Planersocietät (2020): Mobilitätskonzept für das Holstenareal

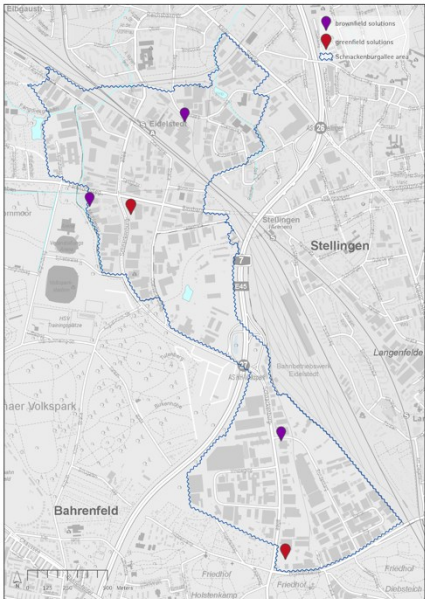
Evaluation Since the area is close to the city centre, it can be assumed that there is a high potential for innovative delivery concepts on the last mile due to the almost 2,600 inhabitants. Future parcel volumes can only be based on estimates. The average Altona resident receives 50 parcels a year. If the 1,300 flats were fully occupied, this would result in 130,000 parcels for the Holsten area alone. The mobility concept already includes a mobility centre with a smart locker solution and a concierge service. It should be ensured that the Smart Locker solution is also used by the local businesses to serve customers after the shopping centre’s opening hours. In addition, it should be possible to drop off parcels at the mobility centre for all service providers.

It is highly beneficial that the mobility centre already has an operator in the form of the neighbourhood association. However, it should be ensured that a certain degree of logistics competence can be provided by the operator. Furthermore, as a high number of different stakeholders can be linked together to identify synergies in transport repeatedly, the exchange with the local companies should also be one of the main tasks of the operator. Finally, commercial transport also includes other stakeholders such as waste management companies or individual services such as cleaning or even care services. Today, commercial transport is increasingly included in urban planning. New plans for neighbourhoods can benefit from these developments by discussing specific delivery concepts at an early stage. A big advantage is that there is already a possible operator for the coordination and that a location for the mobility centre is already being planned. However, it will also be the operator's task to set up a business model that is as cost-effective as possible in cooperation with possible value-added services.

4.3.3 Schnackenburgallee

Since 1952 the Schnackenburgallee is a commercial and industrial area located in the northwest of Hamburg. With approximately 1,500 companies are located here, resulting in 12,000 employees for the 250-hectare big area it is the second largest industrial area in the federal state of Hamburg. The site is currently part of a large-scale future-oriented development of the location.

Figure 6 Potential locations for micro-hubs



Source: Courtesy from the Borough of Altona

Figure 6 marks locations that are either suitable for greenfield solutions (red) or brownfield solutions (purple). The industrial area narrows in the middle. Industrial areas do not count to the classic use cases for micro-hubs like neighbourhoods with a lot of living spaces. While the population density in industrial areas is below average, parcel shipments in particular still have a high share.³⁵ Due to the high number of business-to-business shipments, the shipment density per km² in industrial areas is significantly above average.

However, most deliveries in these areas exceed the possibilities of transporting them with alternative delivery concepts such as cargo bikes, either because of their size or volume. This makes the collection and fine distribution of shipments difficult as a significant level of consolidatable shipments has to be achieved in order for the hub to be economically successful. The conceivable option would only be to link up business-to-business shipments with commercial traffic that does not focus solely on parcel shipments. This could for example include craftsmen vehicles or waste disposal companies. For this purpose, it is recommended to enter into an exchange with the local stakeholders and discuss existing challenges and possible solutions through consolidation.

Moreover, it can be assumed that due to the large number of employees, smart lockers could be installed at least at the public transport points to provide employees with a value-added service and thus increase the attractiveness. For a final analysis, the focus should be on the results of the survey of employees and specifically their means of transportation.

4.3.4 Science City Bahrenfeld

In addition to Mitte Altona and the Holsten-Areal the City of Hamburg and the borough Altona are developing the *Science City Bahrenfeld* in the northern part of the district. The new area will combine science and living in a new way as an urban campus is combined with studying and living quarters and a research and innovation park. In contrast to the other projects described, *Science City Bahrenfeld* is still in the master plan phase with a time horizon until 2040.

In projects such as the *Science City Bahrenfeld* the possible challenges of commercial transport should be considered right from the start as this can later lead to a great advantage. Due to the fact that the planning is still in process it is possible to include innovative delivery methods. For test purposes concepts like drones and robots could be included but it would be vital to combine these with an end-to-end delivery infrastructure with multiple micro-hubs. Through strategic planning, which can be found at this site, particular emphasis can be placed on identifying the various commercial transports in addition to parcel delivery at an early stage and creating synergies as quickly as possible. This enables an early reaction to expected obstacles such as loading zone bottlenecks or increased traffic.

³⁵ ILS – Institut für Landes- und Stadtentwicklungsforschung (2019): Gesamtstädtisches Konzept Letzte Meile

5 Key Takeaways

It can be assumed that the ongoing traffic problems within urban areas and city centres will continue to increase due to megatrends like urbanisation and the e-commerce development. Resulting in more congestion due to additional traffic, double parking, and also ecological consequences due to CO₂ emissions. The implementation of micro-hubs alone will not solve all the challenges. After all, commercial transports are not solely responsible, but they do contribute.

Generally, Altona is well suited for pilot projects due to the high average number of parcel shipments. There are various city development projects in the district most of them are at very different project stages. It is recommended to **include commercial traffic as early as possible** in urban planning. Even if mobility solutions are already discussed in most of the projects, the early involvement of commercial transport can support the early identification of challenges. Consequently, it would be possible to **address recurring challenges in advance**, e. g. the operator of the micro-hub. In this way, the operation of a logistics hub through a future neighbourhood management can get in touch with other actors at an early stage and create synergies.

As expected, it is difficult to **identify suitable spaces** that are located in the inner-city area and can still be operated profitably as a micro-hub. The exchange within the workshop revealed that there is a commitment to the development of a micro-hub among different retailers. Once again, this highlights the importance of **dialogues with local stakeholders**. Companies can provide available spaces, but often do not know how to make use of them efficiently. Due to their day-to-day business commitments, it is very important to link different stakeholders and support collaboration between them in order to identify suitable spaces.

If suitable spaces have been selected it is especially important to **incorporate relevant authorities** who are responsible for health and safety at workplaces. The process of obtaining approval for an area can often be protracted, as permits are pending or small structural changes such as reinforcement of the floor needs to be carried out. In the long term, micro-hubs should not be set up as pilot projects or test phases, but rather develop an economically sufficient business model.

6 List of References

- CCB Bergedorf (n. d.): CCB-Paket-Service, accessed at: <https://www.citycenter-bergedorf.de/ccb-paket-service/>
- CityLab (2018): City Deliveries using micro-hubs and innovative freight bikes, accessed at: https://www.citylab.soton.ac.uk/180308_Amsterdam.php
- DVZ (2018): UPS baut Citylogistik in München, accessed at: <https://www.dvz.de/ru-briken/land/kep/detail/news/ups-baut-citylogistik-in-muenchen-aus.html>
- Freie und Hansestadt Hamburg (2018): Nahversorgungskonzept 2018, p. 58, accessed at: <https://www.hamburg.de/content-blob/13327388/58a2cdf170fd605668c72f7cf0c61a15/data/nahversorgungskonzept-altona.pdf>
- Hamburg Box (n.d.): Die Hamburg Box: deine flexible Abholstation am Bahnhof, accessed at: <https://hamburgbox.de/#hamburgbox>
- HIW Hamburg Invest Wirtschaftsförderungsgesellschaft (2019): Micro-Hub-Standorte in Hamburg
- HSBA Hamburg School of Business Administration (2017): Last-Mile- Logistics Hamburg – Innerstädtische Zustelllogistik, accessed at: https://www.hsba.de/fileadmin/user_upload/bereiche/forschung/Forschungsprojekte/Abschlussbericht_Last_Mile_Logistics.pdf
- ILS – Institut für Landes- und Stadtentwicklungsforschung (2019): Gesamtstädtisches Konzept Letzte Meile
- KEP-Studie 2019 im Auftrag des Bundesverbands Paket und Expresslogistik e. V. and BIEK Kompendium Teil 5 | Mai 2018
- KEP-Studie 2020 im Auftrag des Bundesverbands Paket und Expresslogistik e. V. and BIEK Kompendium, accessed at: <https://biek.de/publikationen/studien.html?year=2020>
- Kiekmo (2018): kiekmo & Frischepost: Direkt vom Acker, direkt ins Fach!, accessed at: <https://kiekmo.hamburg/artikel/stadt-verkehr/kiekmo-frischepost-direkt-vom-acker-direkt-ins-fach>
- Kiekmo (n. d.): Ein kostenloser Service für alle Hamburger, accessed at: <https://kiekmo.hamburg/info/schliessfach>
- KoMoDo (n. d.): Mikro-Depots und Lastenräder - klimaneutral auf der letzten Meile, accessed at: <https://www.komodo.berlin/>
- Logistik Heute (2019): Citylogistik: GLS elektrifiziert Zustellung in Düsseldorf, accessed at: <https://logistik-heute.de/news/citylogistik-gls-elektrifiziert-zustellung-duesseldorf-16897.html>
- Michael Bauer Research GmbH (2020): Kaufkraft 2020 in Deutschland, accessed at: https://www.mb-research.de/_download/MBR-Kaufkraft-Bundeslaender.pdf

Micro-Hub.eu (2020): Dann klappt's auch mit der letzten Meile, accessed at: <https://micro-hub.eu/AUSLAND/>

ParcelLock (n. d.): Moin Moin! Hamburg Box, accessed at: <https://www.parcellock.de/hamburgbox/>

Planersocietät (2020): Mobilitätskonzept für das Holstenareal, accessed at: <https://holstenquartier.com/projekt>

Ploos van Amstel, Walther (2020): Green Postal Day: PostNL announces emission free last-mile by 2030, accessed at: <http://www.citylogistics.info/business/green-postal-day-postnl-announces-emission-free-last-mile-by-2030/>

Rytle (n. d.): Rytle - the Smart Move, accessed at: <https://rytle.de/?lang=en>

SHP Ingenieure (2013): Mobilitätskonzept Mitte Altona, accessed at: <https://www.hamburg.de/contentblob/4111664/2809d680baf01c026ab2f8583eb46d3c/data/mobilitaetskonzept-mitte-altona.pdf>

Spine Architects (n. d.): LOLA Locals Logistic Lab, Hamburg, accessed at: <https://spine-architects.com/projects/lola>

Stadt Würzburg (2018): Abschlussbericht Teilkonzept Urbane Logistik im Rahmen des Green-City Plan Würzburg, accessed at: https://www.wuerzburg.de/media/www.wuerzburg.de/org/med_403138/551885_green-city_plan_teilkonzept_ul.pdf

Tuinhout, Laurens (2018): The journey: floating depot, light electric vehicles (e-cargobikes), micro-hubs and public procurement, accessed at: https://www.citylab.soton.ac.uk/presentations/180308_Amsterdam/Tuinhout.pdf

Verkehrsrundschau (2020): Hermes: Rund 40 Prozent mehr Sendungen in Deutschland in April, accessed at: <https://www.verkehrsrundschau.de/nachrichten/hermes-rund-40-prozent-mehr-sendungen-in-deutschland-im-april-2622106.html>

7 Annex

7.1 Protokoll

Note: As the workshop was conducted in German, the following documentation is provided in German.

Ort: Bezirksamt Altona, Jessenstraße 1-3, 22767 Hamburg,
Großer Sitzungssaal (EG)

Zeit: 29. Juni 2020
18:00 bis 20:30 Uhr

Teilnehmende

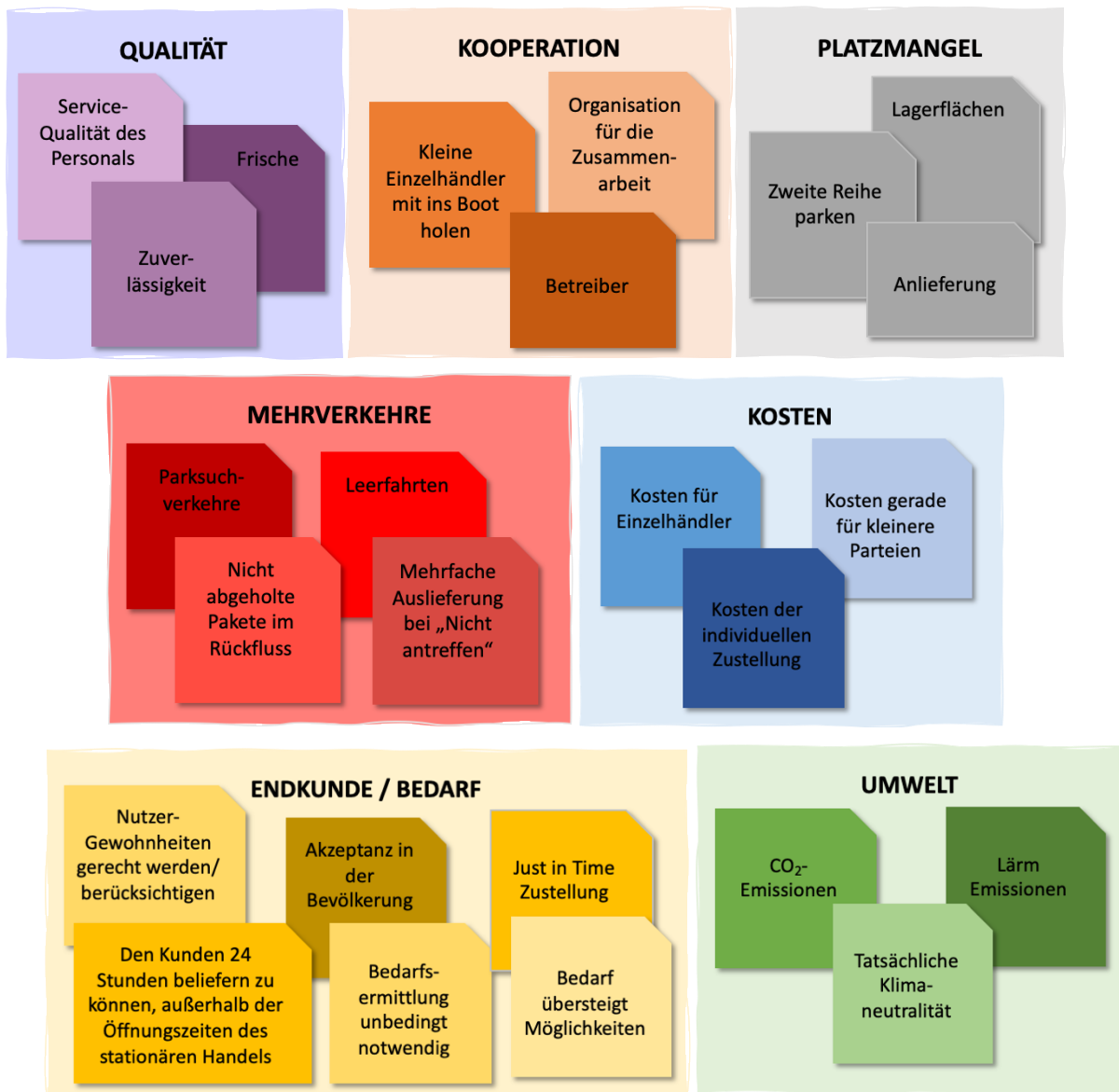
Interessengemeinschaft Große Bergstraße e.V.	Alexander Höpker
Interessengemeinschaft Große Bergstraße e.V.	Klaus-Peter Sydow
Mercado Center Management	Sven Ebert
IKEA	Britta Mohr-Rothe
IKEA	Elk Heise
DB Smart City	Stephan Lerch
DB Smart City	Nicole Hänel (per Videokonferenz)
Bezirksamt Altona	Heike Bunte
Hanseatic Transport Consultancy	Alena Werner (Protokollantin)

Agenda

1	Begrüßung und Vorstellungsrunde der Anwesenden	Heike Bunte
2	Vorstellung der Inhalte zum Projekt HUPMOBILE	Heike Bunte
3	Einführung in das Thema „Letzte Meile“	Alena Werner
4	Smart Locker in Hamburg Micro-Depot am Bhf. Altona	Stephan Lerch sowie Nicole Hänel
5	Diskussion	Alle Teilnehmenden
6	Verabschiedung und nächste Schritte	Heike Bunte

Identifizierte Herausforderungen

Die hier aufgeführten und kategorisierten Post-Its, wurden von den verschiedenen Gewerbetreibenden als persönliche Herausforderungen in Bezug auf die innerstädtische Zustelllogistik genannt. Die Beiträge bildeten die Grundlage für die nachfolgende Diskussion.



Diskussionsteil

Im Folgenden sind die besprochenen Diskussionen zusammengefasst worden. Dabei wurden die folgenden Punkte als besonders wichtig erachtet.

Kooperationen untereinander

Im Bezirk Altona gibt es einen heterogenen Mix aus großen und kleinen Einzelhändlern.

Kleine Einzelhändler...	Große Einzelhändler...
benötigen einen möglichst einfachen Prozess, am besten muss dieser „auf dem Silbertablett serviert werden, um zusätzliche Aufwände möglichst gering zu halten.	sehen die Vorteile, die der kleine Einzelhandel für sie selbst hat und wollen diesen auch deshalb stärken.
handeln wird vom unternehmerischen Risiko bestimmt. Je geringer das Risiko ist, desto höher die Chancen, dass eine Kooperation zustande kommen kann.	
sollten nicht abgeschreckt werden. Deshalb ist ein möglichst behutsamer und vorsichtiger Umgang erforderlich.	

Möglicher Lösungsansatz: Einführung von Leuchtturmprojekten, bei denen einige wenige große und kleine Einzelhändler (ca. drei bis vier Parteien) gemeinsam arbeiten. Hierbei sollte auf die bekannten Netzwerke zurückgegriffen werden, die in der Vergangenheit als prominente Stakeholder, vor allem unter den kleinen Einzelhändlern, identifiziert worden sind.

Möglicher Lösungsansatz: Die Vorteile einer Kooperation müssen vor allem dem kleinen Einzelhandel klar kommuniziert werden und Risiken direkt angesprochen und diskutiert werden. Die ökonomischen Vorteile und der Nutzen für die kleineren Einzelhändler sind hierbei herauszustellen. Außerdem ist darauf zu achten, die gleichen Bedingungen für alle Einzelhändler zu schaffen und dies in der Kommunikation mit den kleineren Einzelhändlern hervorzuheben.

Online-Handel und damit verbunden Retouren

Kleine Einzelhändler...	Große Einzelhändler...
schrecken davor zurück einen Online-Handel aufzubauen, da die Retouren eine zu hohe Unsicherheit bilden, da diese nicht geplant und nur schwierig reguliert werden können.	erkennen den Mehrwert des Online-Handels. Gerade deshalb steht die Stärkung des stationären Handels aber auch im Vordergrund ihrer Bemühungen.
hat meist selbst keine Motivation einen Online-Handel zu eröffnen. Diese Motivation ergibt sich erst, wenn es anders nicht mehr geht.	sehen bei Retouren vor allem hohe finanzielle und zeitliche Aufwände.
verhalten sich sehr vorsichtig gegenüber neuen und innovativen Konzepten.	

Möglicher Lösungsansatz: Es muss mit Daten und Fakten gearbeitet werden. Das heißt wenn die Adaptionraten hoch genug sind und die kleinen Einzelhändler einen neuen Markt und damit neue Kunden erkennen können, steigt die Wahrscheinlichkeit für die gemeinsame Nutzung.

Möglicher Lösungsansatz: Es muss ein Modell geschaffen werden, dass bspw. durch eine feste Preisgestaltung die Planungssicherheit des möglichen Micro-Hubs erhöht.

Umgang mit Corona

Kleiner Einzelhändler...	Große Einzelhändler...
standen vor großen Problemen. Oftmals befanden sich alle Mitarbeiter in Kurzarbeit, sodass sich die Besitzer selbst um das verbliebende Tagesgeschäft gekümmert haben.	vernahmen einen Anstieg im Online-Handel. Dieser bildete den letzten verbliebenen Vertriebskanal.
hatten Zugriff auf eine Händler-Plattform, diese wurde jedoch nicht wirklich genutzt. Lieber wurde es selbst gemacht (Mögliche Gründe: zu hoher Aufwand bzw. Barrieren wie die Durchsicht mehrerer PDF-Dateien für die Eigentümer zu hoch).	hatten Schwierigkeiten vor allem durch die extrem hohen Mengen zu Beginn der Corona-Zeit. Auch die großen Einzelhändler waren nicht auf das Ausmaß vorbereitet.

Gemeinsamkeiten

Endkunde	Der Endkunde im Bezirk Altona hat sich aus Marktumfragen der großen Einzelhändler als besonders preissensitiv herausgestellt (Bezug IKEA sowie Mercado).
	Der Bedarf und die Akzeptanz der Bewohner Altonas muss im Vordergrund stehen, denn dies erleichtert die Durchführung eines solchen Projekts um ein Vielfaches.
Finanzierung	Subventionen bzw. Förderungen sind notwendig, da vor allem der kleine Einzelhandel keine weiteren Projekte ohne externe Finanzierung stemmen kann.
Betrieb	Zur Vermeidung von Konfliktpotenzialen ist ein anbieterübergreifender (ggf. externer) Betreiber gewünscht, der sowohl kleine als auch große Einzelhändler miteinander vereinen kann. Fokus auf Themen wie Abrechnung und Organisation von ggf. zusätzlichen Mitarbeitern
Initiativen	Vorschlag "Ottensen macht Platz" zu eigen machen und dafür bspw. Parkplätze im öffentlichen Raum nutzen.

Nächste Schritte

Das Bezirksamt Altona wird die Gruppe der Gewerbetreibenden weiterhin per E-Mail informieren und weitere themenspezifische Workshops (je nach Entwicklung COVID-19; wie ggfs. Onlineformate oder auch Befragungen) folgen.