Whitepaper

Logistics hubs and the liveable city of the future

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TABLE OF CONTENTS

Introduction

Liveability of cities under threat

The need to transition to create liveable cities is one of the world's major challenges. These challenges encompass the environment, population, growth, mobility and scarcity. In this whitepaper we focus on liveable spaces as a scarce resource.

The livability of our cities is worsening, seen in growing emissions, increasing traffic, and unsafe streets. According to a WEF (World Economic Forum) report, the number of delivery vehicles in the top 100 cities worldwide will increase by 36% by 2030 if no action is taken. As a result, every traveller could add an average of 11 minutes to their daily travel time. The number of traffic accidents has also risen in recent years (with the exception of the pandemic). In 2022, more cyclists crashed due to a collision with a truck, bus or other vehicle. Causes include fatigue and speed (but the increase is also due to alcohol, drug use and distraction caused by mobile phones, source CBS 2023).

Something needs to change, that much is clear. Emission-free and car-free neighbourhoods are a step in the right direction towards reaching net zero. These initiatives should half CO_2 emissions and reduce the number of kilometres driven in cities. But the question remains whether we can achieve this by 2030, or even 2050...

Future-proof urban logistics may be on the agenda, but is it enough? Solutions such as smarter loading and unloading, night deliveries, waterborne transport, innovative delivery routes fuelled by real-time traffic and GPS data, and multi-functional logistics hubs are essential. Several parties are already sounding the alarm about whether there will be enough charging stations, with entrepreneurs indicating they are unable to pay for the electrification of their fleets. (Algemeen Dagblad, 2023 and The Entrepreneur, 2022).

So, what does it take to make the switch? How responsible are we actually being?

Read about it in this whitepaper.

The Netherlands in transition

Effective use of space is crucial

There are numerous hard choices to be made by policymakers, where one choice can influence the others. So, which are the most critical choices to be made first?

If we want to move towards sustainable and future-proof cities, effective use of space is crucial. The Dutch government has created three thematic perspectives:

1. Agriculture and nature
2. Networks for energy and circular economy
3. Liveable cities and regions, where water and soil systems are a guiding element in all three perspectives

The Netherlands Environmental Assessment Agency (in Dutch PNL) has developed four scenarios for the layout of the Netherlands in 2050. These scenarios are:

1. Global entrepreneurial
2. Fast-paced world
3. Green country
4. Regionally rooted

Some elements exist in each scenario. A key example of this is the transformation of the existing built-up area that plays a role within each of these scenarios (PNL, 2023).

Regardless of the scenario, a huge task of restructuring and transformation awaits us. In the National Environmental Vision, 'multiple use of space where possible' is mentioned by the government as an important ingredient for a successful scenario.

This involves combining functions, both in urban and rural areas, as well as in the North Sea.

The transition to realise these scenarios will require a large-scale change in urban planning and logistics. How can urban projects deal efficiently with the challenges of the future? How can existing structures be improved and new technologies implemented? In short, how do you create sustainable cities?

An excellent example of a development where existing structures are enhanced and new technologies are deployed are hubs, particularly logistics hubs, with initial trials currently being carried out.

As part of the mobility transition

Logistics hubs

What are logistics hubs?

There are different definitions of urban logistics hubs. Still, they are generally considered strategic locations where goods are collected, distributed and transported using sustainable and intelligent logistics solutions, including storage, distribution, cross-docking and last-mile delivery.

- Storage and distribution: A logistics hub often acts as a central location for the storage and distribution of goods. This includes the temporary storage of goods before they are distributed to their end destination, as well as the consolidation of goods flows to maximise transport efficiency.

- Cross-docking: Cross-docking is an important function of logistics hubs, involving the transfer of goods directly from incoming trucks to outgoing trucks, without first storing them. This minimises storage time and optimises transit, saving costs and transport time.

- Sub-functions: logistics hubs can also provide space for partial functions, such as shared storage space, co-working spaces for logistics service providers, partial mobility and partial goods. This encourages cooperation and synergy between different parties, which can lead to more efficient use of resources and knowledge exchange.

- Last-mile delivery: Logistics hubs can act as node for last-mile delivery. This includes consolidating parcels and organising efficient delivery routes, for example by using multi-brand lockers or other pick-up points. This reduces the number of individual delivery vehicles on the road and contributes to sustainable city logistics.

A logistics hub can serve a single purpose but can also be multifunctional, where major transport and other sub-functions are integrated. A good example is the car-free Beurskwartier in the municipality of Utrecht. A multi-functional hub allows all parties to cooperate, share resources and optimise logistics processes. With increasingly stringent requirements for using scarce public space, innovative and sustainable solutions are very welcome.

IMAGE: RENDER MY PICK UP POINT

IMAGE: CITYLOGISTICS

The Success of Logistics hubs

The concept of logistics hubs is not new. In 1962, Unicef set up a hub in Copenhagen to collect goods for children in third-world countries that has been continually innovated and developed ever since (Unicef, 2022). The good news is that more and more cities are seeing the importance of hubs as a tool to accelerate mobility transition and promote sustainable urban logistics.

There are already several hubs around the globe, in major cities such as Singapore, Hamburg, Shanghai and Los Angeles. These hubs show benefits in terms of reducing traffic congestion, reducing emissions and improving liveability.

- Singapore has set up a network of "logistics superhubs" to improve urban distribution. These hubs act as intermediate stations where goods are consolidated before being sent to their final destination, reducing the number of trucks going in and out of the city. Logistics Superhubs

- Copenhagen uses "City Hubs" to make last-mile deliveries more efficient. These hubs are located just outside the city centre and act as hubs where goods are transferred to electric bikes and small electric vehicles for delivery in the city. City Hubs in Kopenhagen

- Paris also has a similar project called "Les Quartiers Logistiques" in which small logistics hubs are being created in different districts of the city. Les Quartiers Logistiques

- There are several small logistics hubs in Amsterdam, such as the "City Logistics Hubs". These hubs reduce the number of trucks providing goods for industries including construction, hospitality, and e-commerce. The hub is used for storage and consolidation, and is completely self sufficient in terms of energy management. City Logistics Hubs in Amsterdam

- Haagse Hub - This hub in The Hague is a facility for efficient and clean supply of goods to government departments, municipal buildings and other real estate in the city center of The Hague. The national post service delivers from the hub into the city with electric vehicles, and Suez helps with the return flow of office waste. (Hogeschool van Amsterdam, 2020)

Case

Pilot MyPup & municipality of Utrecht

The municipality of Utrecht is working with sustainable logistics provider MyPup and consultancy firm Advier to pilot public parcel points.

Since January 2023, residents have been able to collect and return parcels at the public parcel points free of charge. What is unique is that MyPup first consolidates parcels from all couriers in central hubs outside the city and then delivers them all in one go by bicycle to the parcel points nearby. Parcels are safely delivered to lockers at public locations, where users can collect their parcels at their convenience. Users no longer have to pass multiple collection points in the neighbourhood.

In preparation for the pilot, consultancy firm Advier conducted a site survey. Among other things, it looked at crowding and potential users in the different neighbourhoods. Based on this, the municipality made a choice. The first public sustainable parcel point is on Jeremias de Deckerstraat in Dichterswijk and the second point is at NS train station Vaartsche Rijn.

The public parcel points can significantly reduce inner city vehicle movements, saving CO2 and nitrogen emissions and traffic congestion. Exactly how big an impact this project will have on air quality and livability (such as safety on the street), the municipality is investigating with MyPup and consultancy firm Advier.

Utrecht is the first municipality in the Netherlands to test parcel points and consolidation in the public environment. The trial runs until April 2024.

From the first months of using the MyPup Public locations, preliminary conclusions can be drawn about the impact on traffic and CO2 emissions in the city. It appears that the methodology used to measure the reduction in miles driven and emissions saved is effective. The impact is clearly visible, with a total of 622 kilometres saved since its opening in January. This corresponds to driving 20 times around the Utrecht ring road and has resulted in saving 150KG of CO2 emissions and 657g of nitrogen (NOx) emissions.

Survey results show that only a small percentage (1.7%) of consumers collect their parcels by car. This is as a positive effect of the neighbourhood hub. Extrapolating the data to the network of 20 MyPup Public locations in Utrecht, the impact on traffic and various emissions in the city is considerably large. In the future, it may be interesting to continue monitoring the impact on traffic flow and road safety in addition to the current data.

Transformation not yet sufficiently developed

A broader view of mobility transition is needed

IMAGE: GEMEENTE UTRECHT

The current efforts are mainly focused on reducing emissions, a good example of this is the reduction of cars in residential areas, such as Merwede in Utrecht. What is misunderstood and therefore not taken into account is that because cars can no longer enter neighbourhoods, other transport public and private transport increases in frequency and usage as a result of the restrictions. After all, convenience is key - consumers will still want items to be delivered, and the movement of people still requires public transport, such as buses. The focus on shifting as the key to transformation does not solve the mobility problem but results in new bottlenecks.

The need for cities to adapt and transition is not a challenge with a straight-forward solution. This is acknowledged by researchers at the Hogeschool van Amsterdam (HvA). Together with the Hogeschool van Arnhem, Nijmegen and practical partners, they are researching business models where entrepreneurs can share the use of logistics hubs. Researcher Wout Nijhuis notes that there are several obstacles in the way of collaboration, but that this is slowly shifting.

A few years ago, we saw that the market and society were not yet ready. Topics such as the mobility transition and the liveable city were not yet on the agenda. The public was not yet ready for it and did not yet see the potential. The closer we get to 2030, we see that awareness is growing and enthusiasm is increasing. This will allow developments in the field to move faster and improve until the right scale is reached."

We still have a long way to go to meaningfully reduce pollution and congestion in cities. Existing structures need to be improved and new technologies deployed. The market and society seem ready for it, but a smart solutions go beyond replacing diesel buses with electric transport. A broader approach is needed. Logistics hubs play an important role in this, but need to develop alongside larger efforts. For the Netherlands to undergo a real mobility transition by 2050, an integrated approach from business, government and the wider public is required.

What does this transition mean for your organisation? And how can your organisation take the first step towards implementing a more sustainable solution for receiving and sending parcels?

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