



Guideline for the establishment of cargo bikes in municipalities

BEF Germany, Cyclurban+

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1. INTRODUCTION

The following guideline is an output of the project Cyclurban+ implemented by the Baltic Environmental Forum Germany, the Czech Environmental Partnership Foundation from Czech Republic, Cyclokoalicia and Ideas to Energy from Slovakia, and the city of Tartu in Estonia and financed by the European Climate Initiative (EUKI).

Facing a climate crisis which is on the way of passing tipping points¹ it is necessary to work on the inevitable transformation of the transport sector. Right now, the greenhouse gas emissions coming from the transport sector cover more than 25% of the total emissions in the European Union,² which is depending on the classification of the limits of the sectors the one with the second most emissions. Using the example of Germany one can see that most of those emissions are emitted by cars.³

As a result, climate friendly alternatives to cars, like cycling, walking, public transport and sharing systems, need support in order to push the trans-

formation in the transport sector. Regarding to the numbers above, it would be a complete illusion to believe that the transport sector can be ignored if we want to have the chance to meet the Paris Agreement. Also, with most European cities having passed ambitious emission reduction plans, the transport sector needs to transform to meet the declared goals. Transforming means hereby mostly reducing motorized individual transport by switching towards alternatives. One alternative are cargo bikes, on which this guideline concentrates by outlining their role to help achieving climate goals and explains how to support the usage of cargo bikes by giving proposals for measures and practical examples from pilot cases in three different municipalities.

Cargo bikes are two- or three-wheeled (electric) bikes that are made to carry more than their rider,⁴ like for example goods or children. They are usually heavier, longer and/or wider than normal bikes to provide space for the cargo. Therefore, they require wider cycle lanes with bigger turning cycles as well as adapted bike parking facilities both public and in residential buildings. Consequently, extra attention in planning bicycle infrastructure is required. As a lot of infrastructure across European cities is currently being (re-)built to enable and support cycling in general, it is crucial to consider cargo bikes in the planning processes to avoid that the infrastructure is in danger of being inadequate in a short time.

It is also important that cargo bikes aren't just a car-alternative for single persons transporting their

1 In: www.rnd.de. [https://www.rnd.de/wissen/klimawandel-fuenf-kippunkte-die-die-welt-fuer-immer-veraendern-koennten-NJHZX4RTRCETOGNLDROWMKV5E.html]. 04.03.2022.

2 In: www.europarl.europa.eu. [https://www.europarl.europa.eu/news/de/headlines/society/20180301STO98928/treibhausgasemissionen-nach-landern-und-sektoren-infografik]. 04.03.2022.

3 In: www.umweltbundesamt.de. [https://www.umweltbundesamt.de/themen/verkehr-laerm/emissionsdaten#verkehrsmittelvergleich_personenverkehr_tabelle]. 07.03.2022.

4 In: argobikes.com. [https://argobikes.com/blogs/blog/what-is-a-cargo-bike-and-why-you-should-want-one]. 04.03.2022.

children or heavy goods. Instead, they are also attractive for companies and public institutions - for example for delivery services, street cleaning, waste collection and many other applications. Companies could use cargo-bikes for delivery services, mobile services, such as mobile sales stall, or for the performance of duties. An example for the last category would be a mechanic coming to your house with all his tools by cargo bike.

Additionally, in cities most distances travelled by cars are relatively short (less than 5km) and can be easily replaced with a (cargo) bike, which is on short distances often faster than a car.⁵ As a result, the loading areas and speed of cargo bikes make them a great climate-friendly alternative to cars while keeping most of the advantages of normal bikes.

Chapter two of this publication "Infrastructure for cargo bikes" gives more information about the key conditions for cargo bike traffic. It is followed by chapter three "Cargo bike rental systems". So, while chapter two deals with how to ensure cargo bike drivers a secure and convenient ride, chapter three displays the experiences drawn from pilot rental systems in three different project countries that aimed to promote cargo bikes by lending them to interested users for real life tests and convince different target groups (private households, SME, public entities) to use cargo bikes instead of cars. Next you can find "Inspiration for further support" in chapter four that wants to inspire more actions.

So, cargo-bikes perform well in most use cas-

es where cars are used primarily. They are climate-friendly, relatively cheap in procurement and maintenance (in comparison to cars), healthy, exciting (not only for children), need less space than cars and in dense urban areas they are even faster than cars because they can bypass congestion and can be parked without delay directly in front of the destination.

Now, as we hope to have raised your interest, you can explore how to support cargo bikes in the following chapters.

2. INFRASTRUCTURE FOR CARGO BIKES

Inadequate infrastructure is the biggest obstacle to the use of cargo bikes, having been consistently highlighted in survey responses and interviews implemented in Tartu within the framework of the project Cyclurban+. Therefore, in this chapter you can find the most important fields of action regarding a cargo bike friendly infrastructure as well as information about economic impacts and finances.

Network

The most important measure that can be used to encourage the use of cargo bikes (and conventional bikes alike) is the creation of a comprehensive and coherent network of safe cycle paths. The network must be (preferably physically) separated from other groups of road users on all major routes. A safe network with wide cycle lanes is particularly essential for cargo bikes, as they are often used to transport children, which makes cargo bike riders more cautious than the average rider. Additionally, cycle lanes should also be wide enough to not only accommodate all types of bikes (espe-

5 In: [www.umweltbundesamt.de](https://www.umweltbundesamt.de/themen/verkehr-laerm/nachhaltige-mobilitaet/radverkehr#gtgt-schnell). [https://www.umweltbundesamt.de/themen/verkehr-laerm/nachhaltige-mobilitaet/radverkehr#gtgt-schnell]. 04.03.2022.

cially the three wheeled models are substantially wider than normal bikes) but also still give the opportunity to overtake or pass each other without danger. Also, curve radii, barriers, ramps, bridges and all other infrastructure must be appropriate for (the relatively long) cargo bikes, something which often is not the case.

Example for Infrastructure that is not suited to cargo bikes (Hamburg, Germany)



Another important factor for cycle friendliness is the compactness of a city. The compacter a city is the easier one can cover all necessary distances climate friendly by walking or cycling. Or in other words: it is not efficient to use the car for short distances, especially when you lose additional time finding a place to park. You can read in chapter four how Tartus compactness contributed to the success of its cargo bike rental system.

Winter maintenance

If the goal is to get people cycling not only in the summer, winter maintenance of cycle paths must be ensured to make it possible to use bikes in all 4 seasons which is indispensable when the cargo bike is procured to replace a car. Cargo bikes can be (depending on their construction and their load) affected more by slipperiness than normal bikes since they are heavier vehicles (3 wheeled cargo bikes have less problems with slippery surfaces than 2 wheelers). Also, uncleared snow can make cycle paths narrower which for cargo bikes can be hindering up to a degree, where the cycle lane is not usable anymore. The best practice is to maintain cycle paths prior to roads, to provide a practical advantage and symbolic support for cycling also in the winter.

Good practice: Winter maintenance in Oulu (Finland)

A good example when it comes to the winter use of bicycles is the City of Oulu. During the winter, bicycles are used to perform 12% of travels in Oulu – this is a much higher number than the share of bicycle use in the summer in many cities. The explanation behind this impressive figure is a good network of cycle paths and excellent winter maintenance. The priority level for winter maintenance on the main network of bicycle paths is higher in Oulu than it is for the carriageway, the cleaning of bicycle paths utilizes milling, not salt, and plough drivers are required to periodically cycle through the maintained sections. These are just some of the important details of Oulu's winter maintenance system.

Construction of roofed bicycle parking lots

At present, cargo bike storage is particularly problematic not only in apartment buildings, but also at many destinations in the cities. As cargo bikes are more expensive than conventional bikes, theft- and weather protection is even more important for their owners. Therefore, it is important to build roofed bicycle parking lots which must be large enough to easily accommodate cargo bikes. The possibility to lock in and charge the cargo bikes can make the parking even more attractive. Many older bike parking facilities are not designed to host cargo bikes but as with other infrastructure it is important to consider the needs of cargo bikes when building new infrastructure. The same applies for

bike storage rooms in domestic buildings. Many are not accessible with heavy, oversized cargo bikes due to narrow corridors and corners as well as stairways leading to the basements that are often used for bike storage in domestic buildings.

Good storage and parking facilities are an important factor to convince people buying their own cargo bike and use it without having to fear damage or theft.

Finances and economic benefits

The more active use of cargo bikes is extremely beneficial for the local economy in several different ways.

Firstly, the use of a cargo bike allows residents to reduce their car use or eliminate it entirely. This can result in a significant reduction in expenditures on mobility by the region's inhabitants, as the acquisition costs for a cargo bike are much lower and the running costs are minimal compared to a car: In 2020, household transport expenses accounted for an average of 11,6% of total expenditures in European countries. To compare: the expenditures for food and non-alcoholic beverages were around 15%. The money saved through more active use of cargo bikes could be spend in economic sectors that are more local in nature than those related to car use, including local small businesses.

Secondly, the more active use of cargo bikes reduces the number of sick days and premature deaths of workers. It is estimated that doubling the share of cycling in Europe will add 7 billion euros a year to the region's economy due to reduced sick days and 78 billion euros saved from the prevention of premature deaths.

Thirdly, pedestrians and cyclists are better custom-

ers and support the viability of local businesses. This is due to different aspects coming with travelling by bike: Cyclists drive slower, so their attention can be drawn easier by shop windows or advertisements. They can also stop & shop spontaneously without having to spend time on parking. Additionally, cycling customers are mostly living or working in the neighborhoods where they shop and that more frequently than car drivers, so relations between retailers and their customers can be established more easily and are more stable.

Cost-benefit analyses have shown that investment in bicycle infrastructure is very profitable. While a rate of return of at least 2:1 is generally considered to be high for transport projects, the rate of return on cycling infrastructure in London is 4:1,⁶ and almost 8:1 in Helsinki⁷. This means that in Helsinki, every euro invested in bicycle infrastructure produces a socio-economic benefit worth 8 euros. This level of profitability is extremely high. Moreover, such high-return investments help to increase the local government budget, which can then be used to implement more positive and necessary activities. While many types of revenue or savings from bicycle use do not directly affect the local government budget in the administrative system (e.g., savings on health care costs), the savings of infrastructure construction and maintenance costs have a very clear and direct positive effect on local government budgets as well as more income caused by the increased attractiveness for locals and tourists alike,

that spend their money in the city and therefore contribute to the economic benefit of the city

3. CARGO BIKE RENTAL SYSTEMS

Cargo bike rental systems or so called “bicycle libraries” are a smart instrument to make it possible for different target groups, like private households, companies, and municipalities, to test the use of cargo bikes in their daily routine or for their businesses and to evaluate their usefulness, which would otherwise be difficult to do without buying a bike right away without testing. To ensure an adequate testing under real life conditions the rental period must last long enough to integrate the bike into daily routines where it can prove its usefulness. Such a test can help substantially with the decision to purchase a cargo bike. Many people refrain from the investment in a relatively costly cargo bike (when compared to a “normal” bike, not in comparison with a car or van.) when they are not exactly sure about the benefits.

The pilot rental systems established in the Cyclurban+ project wanted to tackle this problem by giving interested target groups the opportunity to rent a modern cargo bike for a realistic time period where it can be used and tested under real life conditions. Of course, rental systems can be set up in various ways, so in this chapter we want to take a closer look at the three different pilot cases we organized in Tartu (Estonia), Bratislava (Slovakia) and Brno (Czechia).

This kind of rental approach – renting from a few days up to 2 or 3 weeks to be able to evaluate the usefulness of the cargo bike in daily life - was mostly successful: the cargo bikes were rented nearly the whole time they were available, and most renters

6 In: [www.cyclinguk.org](https://www.cyclinguk.org/sites/default/files/document/migrated/info/economy1fbrf.pdf). [https://www.cyclinguk.org/sites/default/files/document/migrated/info/economy1fbrf.pdf]. 17.05.2022.

7 In: [www.hel.fi](https://www.hel.fi/hel2/ksv/julkaisut/julk_2015-1_en.pdf). [https://www.hel.fi/hel2/ksv/julkaisut/julk_2015-1_en.pdf]. 17.05.2022.

considered buying a cargo bike in the future after their experience.

Different Cargo Bike models and target groups

Offering different types of cargo bikes within a rental system gives renters a variety of possibilities and leads to more understanding which types of cargo bikes are most popular.

For instance, the Cyclurban+ partner Cyklokoalicia offered four different types of cargo bicycles with electric support in Slovakia, which were:

1. A street cleaning bicycle (trike) with a broom and a trash can
 2. A disinfection bicycle (trike) with two tanks and an electric pump (for instance for cleaning street furniture, watering plants and the like)
 3. A cargo transport trailer and
 4. A cargo transport bicycle with a lockbox with an electric lock with an access card
- In Brno, the Czech partners of Cyclurban+ rented three different types of cargo bikes with a loading area and in Tartu the models available were an Urban Arrow cargo bike, a Trike and a Trike Cargo.

As you can see, many different cargo bike types do exist and it depends on what target group one wants to address with the rental system and which models are most suitable for the different purposes.

For example, in Slovakia the cleaning bicycle was very popular amongst municipalities. They used it to gather fallen leaves, abrasives left after winter maintenance, and to collect trash on sidewalks, in

parks and streets. On the other side, Individuals and private companies preferred the cargo bike with the lockbox and the trailer. Since private users, who mostly are young adults with a university degree, often use cargo bikes to transport children, the bikes with a versatile loading area were more favored in this target group than the ones only suitable for items.

Other examples of cargo bike models and their users are: The e-trailer, which was used by a bicycle sharing operator in Slovakia to transport conventional bicycles for servicing or to move them between different bike sharing locations, and the disinfection bicycle, which was despite the COVID pandemic not rented at all, against all assumptions. The Cargo bike rental in Tartu rented (besides other models) the so-called Urban Arrow cargo bike, which was rented nearly the whole time (on total for 228 of 272 days).

It is worth noticing that including accessories like a lock, high visibility vests or helmets make the rental even more attractive. Also, it is quite important that the bikes have a parking brake and a long-lasting battery. These are results of feedback forms used in the pilots. Such feedback forms are very important to improve the rental systems and make them more popular amongst users.

Organization of cargo bike delivery

In the pilots it was possible to coordinate the rentals without digital automatization. However, if one wants to establish a rental system long term and with more bikes, an automated online rental system is necessary. After entering their data, the customers would then pick up the cargo bike at one spot or it would be delivered, depending on the



Street cleaning bicycle



The delivery trike had only limited impact



The COVID disinfection bicycle didn't interest municipalities contrary to the preliminary expectations



The E-trailer was immensely popular specially with bike sharing companies.

kind of system. If the rental system exists within a municipality, it is best to locate the bikes at one - or more - central spot(s), like the project in Tartu did (see picture below), to be easily picked up by the renters. It is thereby important that such a spot protects the vehicles from the weather and other possible damage as well as theft. (see "Construction of roofed bicycle parking lots")



The pickup station for cargo bikes in the center of Tartu

The other possibility is to deliver the bicycles to the users like Cyclokoalicia in Slovakia had to do, since municipalities were one of their major target groups. A disadvantage with that would be the time-consuming delivery-coordination and as a result the shortening of the actual rental time as well as higher costs.

Rental period and data collection

The average length of a rental period in the three pilots was between 7-12 days, although long term rentals were sometimes requested, too, depending on the model and the renter. To ensure the renters not only use the cargo bike for a specific event, but also learn how convenient it would be to integrate it into their daily routines, a minimum term of at

least a few days should be set.

In Tartu, GPS data was collected during the rentals, which was helpful to analyze user patterns, preferred routes and covered distances. This information is of great value as it can help with the planning of infrastructure such as cycle lanes or the location of future rental stations.

Another efficient tool to find out how the system was used and if the renters were satisfied is a feedback form. The feedback from the pilot in Bratislava for example gives information about the interests of the renters: Most of them wanted to test the cargo bike as an alternative to a car, 10% wanted to transport something they couldn't move without a cargo bike, and many would have relied on walking (10%), a normal bicycle (10%) or a car (70%) if the opportunity to rent a cargo bike wouldn't have existed. The users also have been asked if they were concerned about climate change (70% yes, 30% somehow) and air pollution (80% yes, 20% somehow). So, it is possible to link the interest in renting a cargo bike with the views on climate change, too. Also interesting is that 60% of the renters have never used a cargo bike before.

Challenges and advantages

First of all, the delivery of the cargo bikes to the renter and the overall coordination can be a logistical challenge. If a bike is damaged it needs to be repaired and the coordination of the repairs can be time-consuming. Depending on the country and region (in this case study some cargo bikes were rented from far away) there are sometimes no dedicated repair shops for cargo bikes, which also was the case in Slovakia. Although some existing bicycle repair shops should be able to service also cargo bi-

cycles, there is almost no existing group of cargo bicycle owners in Slovakia yet. Some delivery companies include cargo bicycles in their fleet, and service their bicycles internally. Some municipalities have a general janitor / repairman available that might be able to fix smaller electrical or mechanical issues with cargo bicycles. It is expected though, that with the gaining popularity of cargo bikes and also of “normal” e-bikes, this problem will be solved relatively soon, at least in bigger cities.

Secondly, some renters had a few issues during their using experience and said learning to control a cargo bike took them some time, but more often the lack of adequate bicycle infrastructure was the bigger problem. Infrastructure that causes problems for “normal” cyclists can be even more problematic for cargo bikes. Potholes and uneven areas in streets can be problematic for heavily loaded bikes. Narrow street sections or narrow curves make it hard to ride a cargo bike and can cause inconveniences or even serious safety issues. Narrow cycle lanes are a problem that often already occurs for riders of “normal” bikes and is even more substantial for cargo bike riding.

On the other hand, there was a lot of positive Feedback. For example, the municipalities which rented the cleaning bicycle praised the good accessibility of spaces where car access is difficult, like hilly sidewalks or parks. Other renters praised the ease of use of the cargo bike. Other positive feedback was the speed and flexibility under city conditions, good electric assist, protection of the environment, the variety of using possibilities and the generally very positive experience and joy using the cargo bike which includes the opportunity to communicate with children while they are being transported in the cargo hold. Most of the renters have therefore

been satisfied or even enthusiastic renting a cargo bike and plan using one in future again (numbers from Slovakia are: 50% yes, 50% likely yes, 0% no), but the satisfaction depends a lot on the existence and condition of the bicycle infrastructure, since this is a precondition for a convenient and safe ride. Some of the renters are taking a future purchase of a cargo bike into account (20% yes, 60% likely yes, 10% no, 10% don't know). Besides, often the users of the rented cargo bikes were active motor vehicle drivers, with 80% of users driving at least several times a year and 30% of users driving at least several times a week (numbers from Slovakia again). A rental system therefore can persuade active motor vehicle drivers, which are exactly the target group that needs to be addressed for a transition towards a sustainable and climate friendly transport sector.

An important factor for the success of a cargo bike rental system can be the compactness of a city. For example, the city of Tartu is built very compact, and its bicycle use increased in the last decade from very low levels to around 10% of all commutes made within the city, indicating that the bicycle infrastructure is getting better. Those two conditions were surely the main reasons for the rental system in Tartu to become so popular that the city decided to continue the system, now with 14 instead of three cargo bikes and some other improvements made as a result of the first pilot test started with the help of the Cyclurban project.

Finances

With the experience of their rental system the City of Brno puts the costs of a cargo bike rental with five cargo bikes at CZK 400.000 to 600.000 (ca. 16 200 – 24 200€) per year. The Czech project partner also analyzed the relation between rental fee and

loans. Converted in Euros the result was that a rental fee of around 4€ per day does not discourage any users from renting. 8€ per day will discourage 10% of users, a fee of 12€ discourages 40% of users, 16€ discourages 90% and 20€ per day discourages 95% of users. The amount of the rental fee therefore affects the number of loans and the overall economic operation of the rental.

Also, worth noticing is that a public cargo bike rental can be operated as a public service similar to public transport, senior taxis or integrated transport systems. According to the detailed business model made by the partners, an operating subsidy of 40 to 50% of the rental turnover is required to run the rental service. By comparison, the Brno Public Transport Authority operates with an operating subsidy of 59 to 67% of turnover so the business model suggests that a cargo bike rental works more cost efficient.

4. INSPIRATION FOR FURTHER SUPPORT

Besides the measures improving the bicycle infrastructure and the implementation of a cargo bike rental system, a lot of other possibilities exist to boost the (cargo) bike friendliness of a municipality. Therefore, below you can find an overview of possible measures.

Infrastructure

In this field we already described the most important measures, which are the creation of a coherent network of cycle lanes and roads, improving the level of maintenance of cycle infrastructure especially in the winter, setting up a (cargo) bike rental system and the construction of roofed bicycle park-

ing lots at traffic hotspots to make it easy to park the bike safely and change to other traffic modes (mobility hubs).

Changes in traffic management, traffic calming and other regulations

Beyond improving bicycle infrastructure, there are still other effective measures that can be taken by municipalities. Traffic calming is an example for a so called “low hanging fruit” as there are no huge investments necessary, just a change of law and some additional road signs. Traffic calming can be implemented in various ways. From setting up a general restriction to 30km/h in the whole city except for ring roads and a few main roads like in Paris, to restricting the tempo mostly in residential areas like in Barcelona’s superblocks. The positive impacts of traffic calming are huge. Not only does it increase road safety significantly it also avoids noise pollution and helps to reduce GHG emissions.

To lower the number of parking space can also have huge effects. On one side, the restriction of parking in popular areas frees space for better cycling and walking infrastructure as well as other purposes that increase life quality in the area, like gastronomy, greenery, playgrounds etc. But it also has the effect that people adapt and avoid visiting these areas with their car, because they know that parking will be too complicated. This effect can be amplified with the implementation of parking fees or a general toll for driving into the city centre and can lead to substantially less car traffic and a resulting increase of the city’s attractiveness for residents and tourists alike. Moreover, raising parking fees leads to compensation of their social costs and increases the competitiveness of sustainable modes of transport. It has been found that raising parking

fees is one of the most effective measures for reducing car traffic. The right to free parking in city centers should be abolished.

The redesign of roads can also help to calm the traffic in dense areas like city centres. The idea here is to restrict the possibilities to though pass these areas with the car by cutting of inner road connections, so that cars always need to drive back to an outer ring road in order to get from one place to another nearby. The result of this design is that getting quick access to the centre by car is complicated while cyclists and pedestrians can easily move within the same central area. The city of Houten in the Netherlands is an example for a frontrunner municipality in this regard, being designed to prioritize the needs of residents, cyclists and pedestrians before thinking of the role cars should have in this context.

Taxes and subsidies

Additive to a rental system a financial purchase support for cargo bikes can help people to overcome the barrier associated with the relatively high investment. Various subsidies for the purchasing of cargo bikes have been implemented in several European cities. In Oslo for example, residents are offered purchase support up to the maximum of 1,200 euros and a maximum of 25% of the total cost of the cargo bike. In Hamburg, up to 2000€ subsidies were given to each private households that wanted to purchase a cargo bike until the budget of 2.300.000€ was exhausted in a relatively short time. According to the experience of other cities, the maximum grant should be at least 1,000 euros in order to be as effective as possible as a measure. The support can be either determined by the local government or even on national level. In the latter

case, electrically assisted cargo bikes could also be made eligible under the electric vehicle support schemes in some countries.

Another idea is an exemption from fringe benefit tax of the use of the company's bicycle during leisure time. Companies do not have to pay a fringe benefit tax on health and sports expenses. This benefit could also be extended to the leisure time use of a bicycle purchased by a company. Companies would therefore be exempted from paying the fringe benefit tax if they want to buy a conventional bike or a cargo bike for the company, with which employees can move about not only during the performance of their duties but also in their free time.

Thinking in this direction it could be a great step to compensate the use of cargo bikes for work. As compensation for traveling by car to and for work is done and tax-exempt, it is important to do the same for bicycles in order to create a level playing field. Considering the high acquisition costs of a cargo bike, compensation for travelling to and for work is a topical issue. Possible specific solutions would be, for example, the implementation of a kilometre-based compensation system or enabling the acquisition of an official bicycle.

Example and Communication

Finally, examples and communication about cargo bikes can convince people to buy one. A measure of this category could be the use of cargo bikes in the provision of local government services like street cleaning and thereby the set of a good example. Helpful are also information campaigns and cycling days as well as trainings and competitions for school kids.

5. CONCLUSION

This guideline contains the most important measures for municipalities to support cargo bike traffic and cycling in general. It wants to help accelerating an evolution of the traffic system towards more climate protection and a higher life quality.

For decision makers that want to start this process the guideline wants to provide a toolkit of different measures that can in one way, or another be used by municipalities. For each of the described measures there is more information available resulting from different real-life cases from all over Europe and beyond, so there is more to dive into in specific areas.

Generally, the process of change takes time. Often there is serious resistance from more conservative and car friendly stakeholders. Therefore, communication with residents and all stakeholder groups is very important before implementing concrete measures on the ground, otherwise projects can be stopped by opposition before they even started to show their benefits. There are many examples where car free areas were implemented and the opposition from residents as well as local retailers turned into appreciation after people experienced the benefits after some time. This goes to say that many people have difficulties to imagine the benefits of change and prefer to oppose, led by unfounded concerns. To overcome this dilemma, a process with clear steps and good communication should be set up and if possible, pilot cases should be done before irreversible facts are forced upon people from above. In this sense we hope that this manual can inspire to address change and move forward towards more climate friendly and attractive municipalities.

6. INDEX

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