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METAMORPHOSIS

Transformation of neighbourhoods in a child-friendly way
to increase the quality of life for all citizens



D4.1 Compilation of instruments

Project partners

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1. Introduction

The purpose of this document is to provide an overview of the implemented measures of the involved cities in the Metamorphosis project, financed by the EU Horizon 2020 programme. It is the goal of Metamorphosis to transform car-oriented neighbourhoods into child-friendly places through innovative temporary interventions that should eventually lead to, for example, permanent road closures for motorised transport or improved sustainable travel solutions for residents. The project gave the cities the opportunity to test and exploit projects and, if possible, integrate them into the city's longer-term strategy. All implemented measures should be a test or pilot experiment to explore the possibilities of opening new doors and developing as a city.

The central work-package of the Metamorphosis project, “WP4 Implementation Trials”, defines its objectives as the following: The consolidation of the learned processes (lessons learnt, improved processes, innovations) into working strategies described in internal reports to be utilised by subsequent work packages, WP5 (capacity building) and WP7 (dissemination). In other words, the goal is to learn from the implementations, and give advice about which implementations worked and why, so that other (follower) cities can apply them too.

This report first gives an overview of the goals and structure of the project. It is important to understand the different ways in which the cities have approached the project to understand the dimensions of each measure. In the second chapter the different categories are presented, the so-called “activity fields”, in which the different measures have been classified. The core of the project, as well as this report, focuses on the individual measures of the cities, which are shown in chapter three. The measures are structured according to the fields of activity, and all contain subchapters on **lessons learnt and recommendations**. These subchapters are central to understanding which of the measures were selected as examples of best practice. The best practices are discussed in chapter four, with longer-term implications of the project discussed in chapter five. This report ends with some of the replanning measures that were undertaken due to the COVID pandemic in chapter six, and finally conclusions in chapter 7.

1.1. Goals of the project

The aim of the project is to transform designated neighbourhoods in seven European cities from car-oriented places into spaces with a high quality of life. This transformation is achieved by focusing on the needs of children to improve physical and mental health as well as liveability for all its citizens. This is based on the premise that a major indicator for well-designed, people-oriented, and sustainable urban neighbourhoods are public spaces with many children in. Metamorphosis is not about building new urban spaces but focuses on the provision of incentives to promote healthy living by cycling and walking and reduce car use.

The goals of the project can be reduced to three principal points:

- creating child-friendly public spaces
- strengthening of “neighbourhoodness” by additional community or social activities
- promotion of cycling and walking and/or reducing car use

To reach these goals, the seven Metamorphosis cities implemented local trials in different neighbourhoods, with the desired outcome of providing recommendations for other cities. The results are diverse because the Metamorphosis cities differ widely in size: Munich has about 1.5 million inhabitants, Zurich about 430.000, Graz about 290.000, Southampton about 240.000, Tilburg about 210.000, Alba Iulia about 63.000 and Merano about 40.000.

To improve neighbourhoods and implement projects such as Metamorphosis, it is important to understand that all cities had a different starting position, both, in terms of cooperation with the administration and in terms of the existing base (as e.g. already implemented projects in the field of strengthening of neighbourhood and sustainable mobility).

1.2 Reasons for Metamorphosis

There are several reasons why cities, neighbourhood associations or other groups should invest in a more child-friendly and sustainable city. Metamorphosis starts from the premise that neighbourhoods with many children in its public spaces is a well-designed and sustainable neighbourhood. The word sustainability itself is already connected with children as it implicates “designed for the next generations”. The concept of sustainability is also associated with the endurance and continuity of ecosystems necessary for on-going survival and is therefore also connected with children. Projects like Metamorphosis can help cities to become more sustainable and future oriented. As it was pointed out in the *General Analysis Report* (deliverable 2.1, p9¹), the project helps to understand the importance of the integration of urban design with transport planning, with a focus on designing for people and sustainable travel instead of car-usage. Cities (and neighbourhoods) become more vibrant, accessible, and beneficial for its local citizens. The importance of focusing on children is that not only will they inhabit the cities of the future, but also that their wishes are based on emotions, rather than on planning possibilities and costs. Therefore, Metamorphosis followed a children’s perspective and implemented measures in the seven cities that take this focus into account.

¹ Metamorphosis Consortium (2017). *General Analysis Report: Transformation of neighbourhoods in a child-friendly way to increase the quality of life for all citizens*. EU Horizon 2020 Report (Public).

2. Activity fields

The cities developed measures in 5 categories, so-called activity fields: (i) intervention in public space, (ii) temporary street closures, (iii) crystallisation points, (iv) educational innovation tools, and (v) empowerment for active mobility. The description of the activity fields is below.

2.1 Intervention in public space

The project focused on three examples for interventions in public space:

- **Hybrid zones:** These are zones where the private and public realm meet. Examples are public breakfasts or on-street activities of local businesses. They create a subtle transition zone where social contact and interaction with neighbours and visitors is encouraged. It also creates a strong feeling of ownership and “neighbourhoodness”, i.e. bringing people together to increase the strength of the local community and well-being.
- **Transformation of parking spaces** with the help of tools like the travelling trees or during park(ing) day: The idea is to transform street space into “real” public space.
- **Establishment of on-street leisure elements and school materials** help to transform street space very quickly and easy into “used” space.

A total of 258 such implementations have taken place in the seven cities.

2.2 Temporary street closure

Temporary closures of streets or public spaces transform these streets and spaces for example into “holiday streets” or “birthday squares”. They can differ in duration: short time, one day, several days. The aim is to move from just once to regular, from short time to longer time and from temporary to more permanent change. Temporary closures took place in residential areas, in commercial areas, school surroundings as well as more mixed areas.

During the project, a new expression was increasingly used: instead of “temporary closure” the term “temporary opening” was favoured. This expression stands for a change of perspective, i.e. opening the streets up for people, away from using cars and towards pedestrians! .

A total of 87 such implementations have taken place in the seven cities.

2.3 Crystallisation points

Crystallisation points are locations where people are offered a formal or more informal opportunity for communication, exchange and sharing. The project focused on three examples of crystallisation points:

- **Mobility share points** serve many purposes and can be of various scope and size. They can provide cargo bikes, (e-)bicycles, possibly carsharing, but also equipment that is of special interest for children, like scooters, roller blades, skateboards, etc. Families can share and/or exchange their children’s mobility tools. Share points can be used as a location to deposit deliveries. They can provide information about neighbourhood events and mobility offers and can generally act as meeting points for social interactions within the neighbourhood.
- **Greening projects:** Urban gardening, community supported agriculture as well as tree planting can improve social contact and cooperation and involve and educate children.
- **Schools** can also become crystallisation points if transformation methods are applied and synergies can develop – for example with outdoor lessons or by involving children, teachers, and parents to develop and establish safe cycling and walking routes to schools, increasing social interaction in the process.

A total of 21 such implementations have taken place in the seven cities.

2.4 Educational innovation tools

Educational innovation tools (e.g. new teachers' curricula and teaching materials) help to raise awareness for the Metamorphosis goals, and they encourage behaviour change. These tools can be used to involve children in a playful yet effective way and enable them to specify and communicate their visions for our future cities and neighbourhoods. They allow for a special focus on migrant/refugee children – as they can be the best way to reach their parents. Metamorphosis worked closely with teachers and kindergarten staff as well as other stakeholders to develop educational innovation tools.

A total of 138 such implementations have taken place in the seven cities.

2.5 Empowerment for active mobility

A major aim of Metamorphosis is to empower children to become more independent users of active mobility. When children get used to walking and cycling at an early age it is easier to continue with such acquired capabilities in the future. Examples for empowerment for active mobility are the following:

- Workshops and training activities at schools to increase the bike competence of children.
- Bike repair courses to enable children to carry out simple maintenance work on their bikes.
- Walking and cycling “buses” to encourage children to walk and cycle to school and at the same time increase their road safety.
- Empowerment of migrant children to introduce their parents to the ideas of active mobility, e.g. by offering bicycle courses for both children and parents.
- Interactive apps, innovative media, and registration programmes to encourage active mobility.

A total of 281 such implementations have taken place in the seven cities.

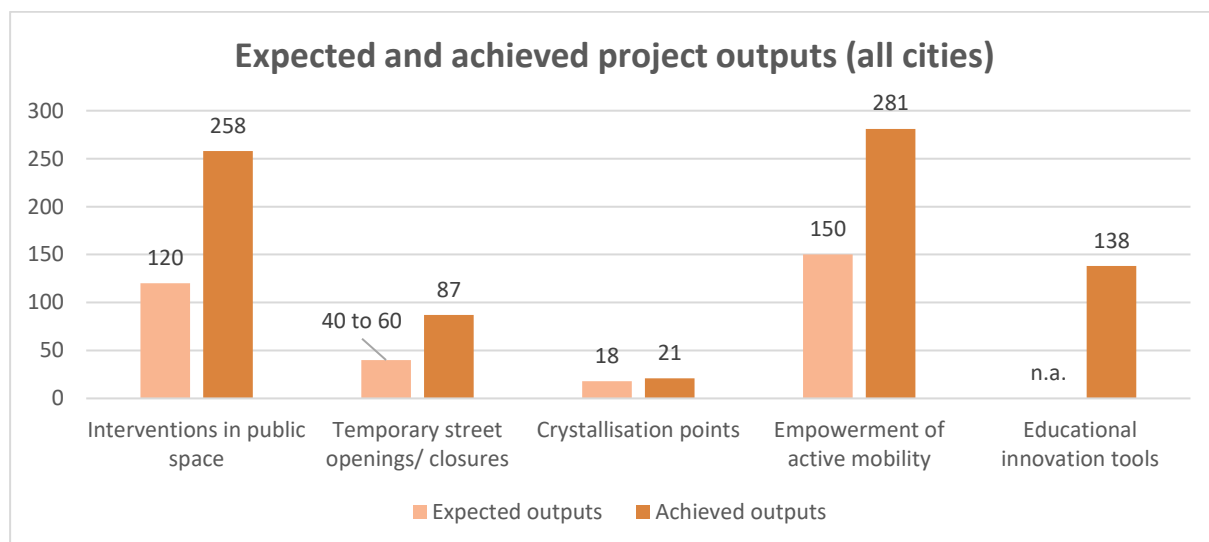
3. Implementations by the cities

As described above, the seven partner cities have implemented various measures to work towards the goals of Metamorphosis. In this chapter, the measures are summarised and the derived recommendations for action are presented, per activity field. But before that the process of the development of the measures is described.

For a more detailed description of each measure, please refer to the factsheets in the appendix. The factsheets describe the idea, the outcome, the impact regarding the three goals (creating a child-friendly neighbourhood, strengthening “neighbourhoodness”, promotion of cycling and walking and/or reducing car use), the implementation process, and the top three recommendations for each measure. Additionally, they include an overall valuation as well as an overview on the resources needed, the effort involved and the applicability regarding the spatial perimeter.

Each city implemented measures in different activity fields, but nevertheless focused mainly on two or three activity fields. The table below shows how many implementations (meaning how often all the measures) took place per activity field in all cities:

Table 1: Number of expected and achieved implementations in all cities



The consortium has managed to complete 57 different measures, which were implemented 793 times in at least 65 different neighbourhoods. During the implementation trial, more than 140'000 people were reached, and more than 30'000 people participated in the project.

3.1 Process

In the project proposal, each city had to present an overview of its planned implementation trials. At the start of the project, the cities had to describe these measures in detail in an implementation plan. These implementation plans included a general description, goals and targets, the implementation steps, a list of involved partners, resources, risk and drivers, communication and dissemination measures, and the approach for the impact and process evaluation.

As a basis for these implementation plans, each city first had to carry out an analysis to define suitable neighbourhoods and districts in which the measures were to be implemented. The chosen neighbourhoods are of a wide variety, in size, structure, density and diversity.

The scope ranges from mono-functional living areas to vibrant neighbourhoods with many different functions and a high share of migrants. There are newly developed areas as well as old deprived neighbourhoods, low-rise as well as high-rise areas, and areas that are either more connected to or are more isolated from the city centre. The measures also differ in their spatial applicability: some have an impact on just one street or less, others on an entire neighbourhood or in some cases, are city-wide.

During the project, some implementation plans have been adapted and changed. Measures that did not work out during the implementation phase were not repeated or adapted, others were repeated several times, or new measures were derived. Some of the measures also had to be changed as a consequence of the COVID-19 pandemic which broke out towards the end of the project (see chapter 6). Therefore, the measures implemented do not fully correspond to the measures submitted in the project proposal.

3.2 Implementations and activity field-specific learnings

At the heart of the project are the numerous measures implemented by the cities. On the following pages, a list of all the measures carried out is presented, arranged according to the activity fields. Each activity field has its own focus and therefore specific lessons learnt or recommendations are provided at the end of each activity field description.

As stated before, 57 different measures were implemented. Yet, the following tables contain 68 measures (and there are also 68 factsheets in the annex). The difference between the actual measures and the measures described is results from the fact that certain measures were implemented more than once, but each time in a different way. To describe those differences, the city which carried out the implementation decided to record the implementations separately. Furthermore, the measures which had to be cancelled or were not successful are not listed in the following table (nor described in a factsheet). The difference in number can therefore be summarized as follows:

Total number of measures:	57
Factsheets (variations of measure implementations):	68
Cancelled measures:	04







In the lists below therefore presents the variants of the implementation of the measures (68, grouped by activity field and city). The corresponding learnings can be found at the end of each list. The cancelled measures are listed separately in chapter 3.2.6sm.


3.2.1 Interventions in public space




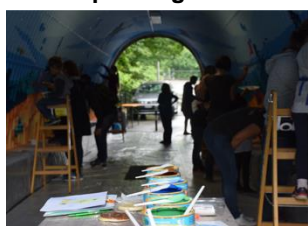
As described above, interventions in public space intended to transform the public space, e.g. by setting up a hybrid zone or by transforming a parking spot. The following table briefly describes the corresponding measures by the partner cities.

Table 2: Measures of Interventions in public space

Measure title	Description	Outcome/Valuation
Graz		
Bicycle space transformers 	<p>Graz with 280.000 inhabitants has 60.000 public car parking spaces. Thus, public space is used by motorists at a low price and blocked for all other road users. People without a car are discriminated and excluded from access to this enormous space resource. Graz tried to challenge the existing road code with a "space transformer" based on a cargo-bike with which parking spots were temporarily redesigned - and thus made accessible for everyone.</p>	<p>When two such space transformers are put side-by-side, they take up the space of a car parking space. Legally the devices are parked bicycles, and, in that way, they are obeying the Austrian road code. This measure can be strongly recommended to other cities as it is an eye opener regarding the unequal access to public space. It is a very elegant method to facilitate a change within legal boundaries.</p>
Bring life back on the streets 	<p>From 2017 to 2019, five areas in the district of Lend in Graz were transformed temporarily into hybrid zones during one to seven days. The streets were closed for motorised traffic in this time.</p> <p>Many local businesses and neighbours took part in the action and made the neighbourhood lively and colourful.</p>	<p>The more often a hybrid zone has been implemented, the more SMEs have participated. With every time the implementations have become more diverse: open-air living rooms, shop window concerts or lectures, outdoor hairstyles, screen printing workshops, outdoor workplaces, fashion fairs, outdoor craft workshops and stands.</p>
Neighbourhood breakfast 	<p>The street in front of a restaurant was closed to motorised traffic. The restaurant organised a public breakfast where people brought their own food or bought it in the café. In the open window a band played music. Games encouraged people to stay. The action was very well visited by residents and guests of the mobility day.</p>	<p>The length of stay in the public space is significantly extended. More children and young people are present. Citizens recognise that they can use and shape the public space. SMEs can easily establish a connection to the people in the neighbourhood.</p>
Street & backyard flea market 	<p>The backyard flea market took place during the neighbourhood festival Lendwirbel in May 2018 in various backyards in Graz. People opened their backyards, staircases and driveways or used parts of the sidewalks as well as blocked parking spaces and set up their own flea market stall. All flea market places were marked on a map.</p>	<p>A flea market is an easy to organise event that brings people from the neighbourhood together and enlivens your own neighbourhood. Social interactions increase and new contacts and friendships are made, even in the long term. Especially children can benefit from the social interactions.</p>
Open Street Gallery 	<p>Through the intervention Open Street Gallery, the public space became an open air art exhibition. Billboards, house walls or shop windows were chosen as exhibition spaces, where various artists showed their art. Artwork can be taken home and a self-chosen amount can be paid to the artist's account.</p>	<p>Cities are livable when their inhabitants are able to shape and use their space. Artists have the great potential to support this with their work. This intervention promotes local artists and is easy and inexpensive to implement.</p>
Kepler & Kunst 	<p>The high school "Kepler" is framed by a large street. Children spend very little free time in the school area. In spring 2019 the pupils worked on a performance (dance and theatre) to express their impressions of the school surrounding. During the Lendwirbel festival, the performance was presented. The school environment was redesigned with the help of graffiti artists, which now fill the courtyard with colour.</p>	<p>The performance of the federal high school Kepler dealt with the school itself as well as the direct neighbourhood and offered students and teachers various possibilities to contribute thoughts and visions. The new school-design was an important part of this process. Now more students spend their free time in the school environment.</p>

Measure title	Description	Outcome/Valuation
Court Culture - Outdoor Sport & Skate Contest 	<p>The initiative Court Culture helps people to discover sports fields in their own city. For Metamorphosis a street was closed for several days and turned into a sports field by adding e.g. basketball basket, football goals or street chalk. Workshops and competitions were organised. For a skate contest a whole street was transformed into a roaring arena.</p>	<p>People of all age groups took advantage of the varied sports programme. The participants were surprised how well the road is suited for sports activities. Participants, passers-by as well as the city administration were involved in discussions about how streets can be used, other than by cars. The feedback was very positive.</p>
Stadt.Liebe Diskurs – talk about your city 	<p>Too often discussions are held behind closed doors. During the neighbourhood festival Lendwirbel 2019 different topics like urban gardens, active mobility or energy production were discussed with pedestrians, interested people and experts. Topics, times and places of the discussions were announced on large canvases.</p>	<p>With relatively little effort and at low costs, a format can be created that brings people closer together. Through discourse in public space, city dwellers have the opportunity to express their opinions on current issues and they can make contact with other interested people. The participants liked it a lot.</p>
Lendplatz - from car parking to living area 	<p>On the public square Lendplatz there are no consumption-free communal areas or playgrounds. During the International Mobility Day 2017, the car park and roads were closed and converted into child-friendly living spaces. Children, schools and adults could take part in various games, exchange ideas for their neighbourhood or school environment. The closure was repeated several times.</p>	<p>An easy and recommendable measure. By blocking the square, the neighbours, visitors and the city administration saw the potential for the neighbourhood in the car-free use of the square. In the beginning people were afraid of losing their parking space. After several closing of the square, the acceptance of the car owners increased.</p>
Lei(n)wände 	<p>Lei(n)wände (canvas) is a combination of outdoor pallet seating furniture and a large wooden screen. Children and adults can share their wishes, ask questions or paint visions for a child-friendly neighbourhood on the canvas. About 20 canvasses were set up in public space and parking lots.</p>	<p>The intervention is inexpensive and effective. Children have fun to participate. Questions asked on the walls as well as drawings encourage residents and pedestrians to think about their own living environment.</p>
Carpet Disko & Dance Karaoke 	<p>Under the motto "Dance Karaoke! We film - you dance!" the public space becomes a dance floor, where people dance on a carpet in public space. The filming takes place over several days on various squares. After collecting and cutting the film material, the finished video is projected on a house wall. The crowd tries to imitate the movements of the actors as good as possible during an event.</p>	<p>The intervention brings people together, is great fun and connects. It is easy to implement. It is very participatory and is suitable for all age groups and backgrounds. The project has grown in recent years from a few to a few thousand people who participate in watching and karaoke dancing.</p>
Walking trees 	<p>15 "mobile trees" on skateboards were located in an asphalt dominated area for several weeks, to increase the quality of stay and to turn grey streets into green oasis. Neighbours and local shop owners were involved in the project, e.g. by taking on responsibility for watering the trees.</p>	<p>The implementation was received very well, at some spots even some real trees were planted after the implementation. It brings people together and has a high visibility, but it requires a lot of organisation (trees have to be procured and transported, new locations and sponsors have to be found).</p>

Measure title	Description	Outcome/Valuation
Alba Iulia		
Public breakfast 	Two public breakfasts took place in Alba Iulia in collaboration with a coffee shop that provided space and infrastructure. It was located on a main route used by parents who take their children to school on foot. The aim was to get into conversation with passers-by and to talk about the Metamorphosis project goals.	50 people took part in the two breakfasts. People were happy to have the opportunity to meet people from the neighbourhood and discuss while drinking coffee and having breakfast. Encouraged by the public breakfast, many participants expressed their desire to be involved in the city's decision-making process when it comes to children's issues.
Calligraphy Workshop 	The city organised a workshop in public space where children could learn the art of calligraphic writing. The city will encourage the organization of such events for children more often where they can interact and develop creative skills. When promoting the event, the participants were asked to bike or walk to the venue.	50 children attended the calligraphy workshop in the citadel. The feedback of the children was very positive. They were actively involved in the workshop and learned a lot.
Urban library 	10 mini libraries designed by two local architects were placed within the neighbourhoods of the city. A big inauguration event took place. Books from one local bookshop and from the county library were placed in the libraries and are accessible for children and general public. People can take books with them but are supposed to leave another one in exchange. Subsequently, monthly events took place in the neighbourhoods.	The urban library is a success story for Alba Iulia as it brings people together and makes them aware of the public space and that they can use it. It is worth sharing and should be replicated in other cities.
Tilburg		
Travelling x-mas trees 	In one school in Tilburg, several travelling x-mas trees were decorated by children and placed on strategical places in the school area to create awareness of the space that cars occupy. The children were involved to think about possible places to put the trees in order to reuse the space in a different, more child-friendly way.	It is a gentle way to point out a difficult traffic situation or traffic behaviour because nobody is against playing children. During the intervention children, parents, teachers and municipal representatives talked about how the situation changed thanks to the travelling tree.
Merano		
Public space transformation 	A small square in Obermais is often occupied by illegally parked cars. In a vision building workshop, children of the neighbourhood came up with the idea to install a skate ramp for beginners in order to deter the cars. They built the skate ramp themselves in a workshop. It was on the square for 10 weeks, before being moved to a nearby school.	The measure was a success. It was interesting to see that public space can be reused in a short period of time. After the temporary use, however, the square was reclaimed immediately by the car-users.
Exploring St. Vigil 	In a workshop on childfriendly neighbourhoods, children developed visions. Based on the visions, different interventions in public space were implemented, e.g. a rap workshop, a swap meet or a bike repair point. The goal was to strengthen the community, focusing on young residents with migrant backgrounds.	The workshop brought up a lot of creative ideas, some of which could be implemented. It also connected children with different backgrounds. The city administration was able to gain trust and respect with their focus on this neighbourhood, and thus strengthen the cooperation with the residents.

Measure title	Description	Outcome/Valuation
Playing street for kids 	<p>One of the main alleys in the neighbourhood Steinach was partially painted to make it more attractive for children. In a workshop, school children painted jumping games on the ground with longlasting colours. The games are supposed to encourage children to spend time outside. The opening of the play street was inaugurated by a street party.</p>	<p>The painting workshop was a success. The children learned to design and paint the public space and it motivated the children to spend time outside. The painted games are used regularly from kids around, although the neighbourhood is rather quiet.</p>
Zurich		
Transformation of a parking spot 	<p>As part of a school project week on mobility, a parking spot was temporarily transformed into a café/bar. The idea was to illustrate how much space cars take up when not in use. In groups, the children built the café/bar out of wooden recycling material. The construction was put up on a public parking spot during an afternoon.</p>	<p>It is a low-key measure, but it is very impressive for the children. They experience first-hand how much space cars take up and they are encouraged to think about what public space actually is and how it is used.</p>
Neighbourhood analysis 	<p>Children between 6 and 12 years old analysed their neighbourhood regarding its qualities and its weaknesses. In a 1-day-workshop they catalogued places they like and don't like on a map and with photos and searched for possible solutions that they painted and wrote directly on the photos. They presented their findings to a member of the city council who commented on the findings. The city administration implemented some of their ideas.</p>	<p>Children are rarely heard in urban development. As this experience has shown, they have very reasonable ideas for their environment from which the whole population profits.</p> <p>In Zurich the success is reflected in the city's willingness to pursue ideas further. As a result of the neighbourhood analysis, the city has installed an encounter zone in one of the neighbourhoods. In the other quarter, a public square will be upgraded and converted into a meeting place in the summer of 2020.</p>
Tunnel painting 	<p>In a neighbourhood analysis, the children noted a pedestrian tunnel on the way to school as a place where they didn't feel comfortable. The city administration commissioned a painter to prime the tunnel. A street artist painted the background. In a workshop with the street artist, the children then painted it colourfully.</p>	<p>The children enjoyed the painting very much and they are highly satisfied with the result. It is a recommended measure to involve children directly in improving specific sites in the neighbourhood.</p>

Lessons learnt and recommendations

Although the measures seem to vary considerably, some conclusions can be drawn:

1. Many of the above measures are **low-key measures** that contribute to a more attractive public space and therefore to a more attractive city. Attractive public spaces encourage people to walk or cycle.
2. The measures are suitable for **temporary implementation**. They can be tested once and, depending on the situation, adapted and repeated several times. Temporary measures are easier to implement than permanent ones, due to their short "life" span.
3. Measures as described above are very **suitable for bringing people together**, thus strengthening the "neighbourhoodness". By providing an attractive place to meet, people are encouraged to spend time outside of their own four walls.
4. The **involvement of local groups and associations** helps to implement the idea successfully, as it is more widely supported, and the target groups can be reached

better through organisations. But one way or the other: **promotion and communication** of the measure are important to reach the target (or wider) audience.

5. Measures taking place in the public space can act as an **eye-opener**. They help to question the current division of public space.
6. Measures in this activity field necessarily take place in public space, and therefore in most cases fall within the competence of the administration. If those measures are implemented by an association, a neighbourhood-group or similar, it is **crucial to involve the responsible** department at an early stage and to obtain necessary permits as early as possible. Depending on the measure, it is necessary to **clarify potential legal issues**.
7. When involving children in a vision building workshop, **expectation management** is crucial. Children must be made aware that it takes time in politics to go from an idea to a realisation, otherwise the measure is prone to lead to disappointment.
8. When involving local businesses or trying to find a sponsor, it is helpful to **show them examples** of what their involvement could look like.

Tips in a nutshell







- Try out as a temporary activity. If necessary: adapt.
- Work with local partners to reach the target groups, e.g. youth centres, community centres or schools.
- Promotion and early communication are key. Always.
- Involve the responsible city department as early as possible and obtain any necessary permits/permissions as early as possible.

3.2.2 Temporary street closure

Temporary closures or rather “openings” of streets transform those streets into spaces that the population can use to their liking. The following table briefly describes the corresponding measures by the partner cities.

Table 3: Measures of Temporary street closure

Measure title	Description	Outcome/Valuation
Graz		
Living Lab 	In order to promote an active way to school, Graz converted the areas in front of three schools into “Living Labs”: an area for educational purposes as well as a room for games and leisure activities. For one day to one week, the street in front of the schools were closed to motorised traffic. In total, over 80 teachers and 1000 students were involved in the Living Labs.	To reallocate the space in front of schools to children is one of the most effective ways to create a child-friendly neighbourhood. The proportion of children transported by car has decreased by 45% and active modes increased correspondingly during the implementation of the living labs. It is a useful measure especially for schools with too little outside space.
Open streets 	On various occasions, five central streets in the neighbourhood of Lend as well as three streets directly in front of kindergartens and schools were temporarily closed for motorised traffic. The opened streets were used for various purposes. People from the neighbourhood and local businesses were encouraged to use the space provided.	The quality of life increases with a road closure. The noise level of the cars is reduced, and the air quality improves. The streets become a living space and the movement area for young and old is expanded. Neighbours get in touch with each other more easily and a more familiar atmosphere is created.
Munich		
Temporary Street Opening 	Munich developed pilot projects: 1) during a neighbourhood street festival a street section is closed for a few hours. Local shops and restaurants are involved. 2) a street is closed for several weeks during the summer. 3) the increase of quality of life in public space was tested by parklets. Thus, parking spots were transformed into recreation areas. The parklets offer seating areas, sandboxes or flowerpots.	Due to some neighbours' reservations, the implementation process turned out to be very difficult and the location of the street opening was not optimal. Hence, there were no great effects. However, there is a great potential that temporary street openings contribute to the design of child-friendly neighbourhoods and awareness raising.
Alba Iulia		
Bubble parade 	The main street in the city was closed for one day to celebrate the international Day of Children. NGOs and the police department organised workshops and activities along the street aimed at children (fashion show with children, cooking workshop, lecture club, painting workshop, mobility contest, recycling workshop). More than 600 people attended the event.	The street was full of people coming from different parts of the city and they were really happy to have a free car day on one of the main boulevards of Alba Iulia. An event like this raises awareness on the importance of restricting the access of cars in the city and giving back the streets to pedestrians and children.
Street Closure - Art exhibition	One street placed in the city center will be closed for a day. During the closure there will be an art exhibition with the thematic of celebrating 100 years from the Great Union that took place in Alba Iulia.	The event was just postponed from the initial date planned. It was held in autumn 2018.
Merano		

Measure title	Description	Outcome/Valuation
We extend the promenade 	<p>In Merano, three street closures took place on the Manzoni promenade. One was organised by the children's council, offering many street games. The other two were organised together with local shops and took up the topic of sports and music. The shops were invited to present their goods or services on the street.</p>	<p>Hundreds of participants, young and old, experienced how an urban street can become a playground and a meeting place. There was a speciality tasting and an open-air hairdressing and cosmetics table. In a sewing workshop, leftover fabric was processed into environmentally friendly shopping bags.</p>
Southampton		
Temporary street pockets 	<p>In many streets there are safety issues because of parents parking as close as possible to the school when dropping off their kids. The city organised workshops with local residents and pupils, teachers and parents to review issues and opportunities on several streets, co-designing interventions to make the street more child-friendly and to encourage an active journey to school. The streets were then temporarily closed to test out the new road layouts.</p>	<p>Young people and residents could design a scheme based on the challenges they saw on a daily basis and that prevented them from travelling actively to school. The trial brought residents together. Their design ideas were incorporated in permanent changes to the neighbourhood. During the trials, children spent time playing outside, residents took care of the plants.</p>
School streets 	<p>Streets around schools are often dominated by large volumes of traffic at drop-off and pick-up times, resulting in air pollution and an unsafe environment. In Southampton, six schools closed the street in front of the school during the drop-off and pick-up-period for one day. The space was used to promote active travel and play activities such as skipping, chalk drawing, bikes skills and play with outdoor toys.</p>	<p>Opening the street up to the students provided a safer school commute, space for school activities and space to play. Higher numbers of students commuted by bike or on foot on the day of the closure. 93% of people surveyed supported the street closures to happen more regularly.</p>
St John's timed school street closure 	<p>In one primary school, Southampton implemented a permanent street closure, using moving bollards which restrict traffic for 45 mins during the school drop off and pick up times. The move was taken in order to improve safety and air quality at the school.</p>	<p>The measure has encouraged active travel to school and a more cautious and courteous driver behaviour. It also led to higher levels of social interactions in the neighbourhood as well as to a positive increase in perceptions of the air quality in the local area. Parents, residents and students have been engaged in the process.</p>
Adaption of application process for street closures 	<p>The city of Southampton adapted the existing Street Party application process, forms and resources to enable residents and community groups to close streets for play and/or community gatherings. Closures can be one-off or regular. With an early applications the event will be processed for free.</p>	<p>Policy has changed so that it is easier to have a street closed. This has led to an increase in the amount of street closures. Resources have been given to community spaces so that communities have the tools to close the street easily. 77 closures have been applied for in the first 18 months.</p>
Zurich		
Temporary street closures 	<p>In two neighbourhoods of Zurich, a street was temporarily closed to the motorised traffic in order to celebrate a street festival. During one afternoon, various activities took place on the streets, for example a street soccer tournament, a concert or a handicraft-workshop for children. The permit to close the street was granted by the city police.</p>	<p>Whether a street soccer pitch, a barbeque, a street café, a mobility parcours or a kids crafting-workshop: A temporary street closure is a great way to show how a street could be used differently. Using it for a street party brings neighbours together and encourages them to spend time in the neighbourhood.</p>

Lessons learnt and recommendations

A summary of the different cities and their lessons learnt and recommendations:

1. Opening a street to the population for active mobility and other purposes will always mean to close it for some other traffic participants, e.g. neighbours trying to reach their home or people who want to drive through. It is therefore crucial to **inform all parties concerned as early as possible**. They should know what is happening, when and why. If possible, they are informed not only in writing, but through personal interaction.
2. It is highly recommended to **involve a local community**, e.g. a neighbourhood association. A street closure will always work better if it is organised bottom-up, not top-down.
3. If it is a public event (e.g. not only for a school), make sure to have a **side programme**, e.g. workshops or performances, to also attract people that are not directly involved.
4. As with the measures regarding interventions in public space, it is crucial to **obtain the necessary permits as early as possible** and to involve the relevant departments.
5. Closing school streets to cars is a very powerful measure to change the modal split of pupils. It is necessary, though, to simultaneously **run an information campaign** so that parents understand why an active way to school is so important, and to plan alternatives. Otherwise, there is a risk that the pupils will simply be dropped off at the nearest street to school.

Tips in a nutshell



- Early and personal communication of all parties concerned is key. Advertise the events to reach as many people as possible.
- Work with local partners to reach the target groups, e.g. youth centres, community centres or schools.
- Find enough neighbours/parents to volunteer for the school street closure/street-party, as it strengthens the support.

3.2.3 Crystallisation points

A high quality of life is achieved (among other things) when social relationships in the immediate area can be strengthened. The activity field “crystallisation point” focuses not only on the strengthening of relations, but even more on the conversion of public space for this purpose. Here the common preservation or maintenance of an object (with its own purpose), with the side effect of meeting people and or changing traffic behaviour, is the goal.

Table 4: Measures of Crystallisation Points

Measure title	Description	Outcome/Valuation
Graz		
Garden for all 	During the street festival Lendwirbel several temporary urban gardening projects were implemented and tested. The aim of the various garden projects was to green public space. Neighbours were invited to plant the beds and to garden regularly. Coffee parties, neighbourhood meetings and workshops were held on site every week.	Citizens experience how urban green and sitting possibilities can increase the quality of life within the city. The duration of stay in the public space is significantly increased. The gardens increase the communication and relationships between neighbours.
Vorstadtgarten 	Raised beds with included seating were distributed to various streets in the neighbourhood Lend. The beds were built with young people and pupils. Many SMEs have “adopted” one of these beds and take care of them permanently. With the support of the city administration more companies were integrated and the project was extended in time and location.	The involvement of local companies has strengthened identification with the district and communication among companies has increased. They don't want to miss the urban green anymore as it makes the grey streets more colourful and also serves as a lounge and meeting point.
Klangdome / Stroboid 	As part of the neighbourhood festival Lendwirbel, the Klangdome installation was set up on an empty, unused square. Klangdome is a tent made out of wood and tarpaulin in the form of a geodesic dome with a special audio system. The Stroboid-tent was erected in the same way in the following year. The tents provided a home for various performances, workshops, readings and concerts.	Infrastructure with multifunctional design makes it easier for people to use it – in all weather conditions and for various purposes. Citizens experience how unused space can be transformed into an open and friendly space for everyone.
Plus/Minus - Gemeinsam Raum schaffen 	The square “Lendplatz Süd” is dominated by a large car park and a farmers' market. Many families live in the area, but there are no playgrounds nearby. During the neighbourhood festival Lendwirbel the parking lot was car-free for ten days. The installation Plus/Minus was carried out with local residents, school classes and other interested parties. They built a public living room out of wood. The place was used to meet, spend time or have a coffee break.	The temporary re-design of a square is recommended. Especially families and children made use of this new space because there is a lack of public space and playgrounds in the neighbourhood. As a room free of any consumption, it has led to a relaxed atmosphere.
Munich		
Mobility Share Point for Families 	To encourage and support families in urban areas to be mobile without a private car, a mobility sharing point offers a new service. Neighbours can borrow an electric cargo bike or pedelec with a trailer attached. Pedal scooters for children as well as helmets complement the mobility share points for families.	The service is received very well, caretakers report a good utilization. There are plans to broaden the concept in the city, however, it is difficult to find caretakers as well as space for the vehicles and the equipment.

Measure title	Description	Outcome/Valuation
Alba Iulia		
Urban Garden 	Alba Iulia set up an urban garden in the Alba Carolina Citadel, the historic center of the city. Schools and citizens could “adopt” their own plant plot to take care of. Several events such as a seeds-exchange-event, a recycling workshop, a cooking workshop and a painting workshop took place and expanded the urban gardening idea.	The measure was a real success. Thanks to the involvement of a sponsor, the place became a real attraction for citizens and for children especially. The diverse activities have met with great interest. For the first time in Alba Iulia, there is an open space organised in such a way that people can interact and take care of their own plot of vegetables.
Merano		
Urban Gardening 	The neighbourhood Steinach is the oldest part of Meran. Due to the small streets which dominate the neighbourhood and the old houses, most apartments do not have balconies or gardens. The urban gardening project faces this issue. Neighbours were invited to take care of the plants. The idea was developed by the neighbourhood council. The municipality supported the project.	Several barriers had to be overcome for the implementation. After the installation of the big garden pots, neighbours complained because (illegal) parking was no longer possible. After the protests the pots on one side of the square were removed.
Zurich		
Mobility share points 	A mobility share point was set up in two settlements, containing one e-bike and one e-cargo-bike. The use of the mobility tools is free of charge for the inhabitants. The e-bikes and the e-cargo-bike can be booked ahead. A group of inhabitants manages the share point (“bike carers”). They also take care of the reservation system and the maintenance of the bikes.	Especially the e-cargo-bike is a suitable replacement for a car, and because it is quite expensive, it makes sense to share it among a larger group of people. Yet it might not work in all environments. It is crucial to have a dedicated group of residents.

Lessons learnt and recommendations

Due to the different focuses and goals of the measures, the recommendations also include different levels and topics that need to be considered.

1. Many of the above measures contribute to a **more attractive public space** and therefore to a more attractive city. Attractive public spaces encourage people to walk or cycle.
2. Crystallisation points are by definition meant to bring people together, thus strengthening the “neighbourhoodness”. By providing an attractive place to meet, people are **encouraged to spend time outside** of their own four walls.
3. It is not just a question of the purpose of the object itself (gardens and share points), but rather of **creating a sense of collective responsibility**.
4. Not all implementations have to be permanently supervised and maintained. Often it is enough to **create a space where people can meet** and can create things themselves – if the demand comes up.
5. In all measures it is crucial to involve people who care about the project/measure and take care of it. **Committed people** who feel responsible are the main key to success. This is especially true for urban gardens, because when they are not maintained, the plants are dying fast.
6. It is helpful to have a **supporting programme** in addition to the crystallisation points (gardens and share points) itself, e.g. workshops, readings, performances, shows etc. This also addresses people who are not directly involved in the project.
7. Those measures can be implemented on private ground (e.g. an urban garden around a business building or a share point in a settlement) or on public ground. If the measure is taking place on public space, an **early involvement of the city administration** is necessary to get the necessary permits.

8. No matter whether private or public: It is important that the chosen spot is **easily accessible** to lower the barriers to participate.
9. Most of the measures can either be **temporary or permanent** – often it is useful to start with a temporary measure and, if the feedback is positive, turn it into a permanent measure later.

Tips in a nutshell

- Involvement of passionate, committed people is the main key to success.
- Have a supporting programme to also address people who are not directly involved
- If implemented on public space, involve the relevant departments.
- Find a spot for the implementation that is easily accessible.
- Start temporary and low-key and let it grow into something permanent (if successful).

3.2.4 Educational innovation tools

Children are an important target group when it comes to changing habits. If children are given the opportunity to think about their immediate environment and mobility at an early age, this will have an impact on their future behaviour. Also, they might influence their parents. This activity field is entirely dedicated to knowledge transfer and supporting tools.

Table 5: Measures of Educational innovation tools

Measure title	Description	Outcome/Valuation
Graz		
Educational materials 	Reducing traffic and reclaiming urban space is usually not an issue included in the curricula of Austrian schools. However, there are already good experiences with the integration of waste separation in the classroom – where children acted as teachers for their parents. The topic was brought into the families via homework. This was particularly successful in families with a migrant background.	Similar to waste separation, traffic calming was integrated into the lessons and found its way home to the families. The topic was approached on the basis of teaching instructions for the 2nd and 4th elementary school level. The feedback from teachers and parents was very positive.
Neighbourhood map 	The dominant car traffic makes it difficult for children to explore their own district. Together with groups of children the neighbourhood was explored and curiosities, beautiful, exciting, funny, but also dangerous and disturbing things were recorded on a city map. Thus, four routes for children through the district were described with a small link and entered on a child-friendly map.	This document was the basis for schools and kindergartens for district excursions. In a first edition, 1'000 copies were made available. The measure is easy to replicate and makes sense for every district.
Revitalisation Home Zones 	10 Action days in different home zones in Graz to invite residents to use the home zones for activities. For this also a booklet was designed and distributed among the residents with ideas for possible games and what home zones could be used for. In addition, feedback was collected during the actions days between July and September.	<p>The actions reached 1430 people (received Information material)</p> <p>354 persons (children, parents) were actively involved (played games, stayed for a talk)</p> <p>Feedback: 204 persons; How do you find the vitalisation action</p> <p>42% very important , 51% important, 7% don't know 0% little/not important</p>
Cargo bike with Games 	In METAMORPHOSIS a cargo bike was developed and built especially for use at neighbourhood street parties, street birthday parties and other children's parties on the street. This measure was carried out in Co-operation with the "CityChangerCargoBike" project	There were 27 rent out days between April and September. The reported number of participants (Children/parents) who took advantage of this service and played /used the tools) was 570

Munich

Toolbox for cycling training



This specific toolbox empowers teachers to implement independently a cycle training scheme with their students. The exercises focussing on braking correctly, balancing and training turning. The toolbox is available to schools for a three weeks lending period. The toolbox shall give teachers a nudge to integrate the topic of cycling with little effort in their lessons.

The usage for teacher is simple. The box contains various movement materials and exercise aids, like traffic cones, quoits, foam balls and batons. Moreover, a guidance document is enclosed. It is easy to implement, relatively low investment and personnel costs.

Toolbox for mobility training



The toolbox enables nursery school teachers to introduce independently the subject of sustainable mobility at the nursery level in a playful manner. In the box, various play and experiment materials are included, moreover, a number of ideas for exercises (handbook). Schools can borrow the box for couple of weeks.

The measure is highly recommended to other cities. It is easy to implement at relatively low investment and personal costs.

Cycling quiz



The interactive quiz on cycling and road safety issues was developed to raise awareness in a playful manner. The participants have to answer question displayed on a monitor by choosing from three possible answering options. For answering they have to tap with their foot on the floor mat with three contact panels. If all questions are answered correctly, the participant wins a small give-away.

The quiz is used at the information stand of the municipal cycling initiative, amongst others at the "Streetlife Festival" which is with approx. 500,000 visitors per year one of the best attended events in Munich.

School Environment Checks



The students examine paths and places in their direct school environment together. The children measure the space on footpaths and cycle paths with a measuring tape and count the green light phase for different road users on busy roads. They are also asked to take pictures of places where they like to go and places where they feel uncomfortable or unsafe.

The project can be well implemented into the curriculum and helps to identify spaces in the direct school environment where children feel safe and comfortable and where they don't.

Merano

Sinich – Parcours



In the neighbourhood Sinich, a parcours workshop for children and young people took place. Self-built obstacles made of wood, car tyres and concrete, painted with colours, combined with steps, curbs and embankments on the site were used for several weeks as a parcours in a private green area in the neighbourhood.

Suitable for the use of private green spaces that are used irregularly, but still publicly accessible. Children can do handicrafts and spend the summer outdoors. Legal and safety aspects must be clarified in advance with the land owner. In this example the parcours was only temporary.

Tilburg

School environment scan



With the School Environment Scan (SES) children are scanning the school area resulting in tips and tops about the (built) environment. In a workshop they point out where the tips and tops are located and discuss the "why". The municipality is a facilitator in which it tries to support the end user as far as possible in realising their goals.

This measure creates awareness and involvement of children, parents, neighbourhood and municipality, so it can have a big impact. When citizens have an influence in changing their neighbourhood, they will be more motivated to adapt their behaviour in that change.

Safe to school



For one week, children are cooperating with city maintainers and are positioned in the school environment. First the maintainers give a presentation about traffic safety and instructions about the measure to the class. By giving green or red cards to the passing road users, the children give direct feedback to the driving behaviour of the motorists which will mostly be parents.

It is a positive way to create awareness about car usage in school environments for children and parents.

Lessons learnt/recommendations

Although the implemented measures - the resulting games, teaching materials or toolboxes - are very different and unique, here are some general recommendations and lessons learnt:

1. Once developed, the measure can be applied several times, in different cities, with different classes. It is therefore very valuable to **share results** with other interested parties.
2. The developed toolbox, teaching material or game should be suitable for children and **adapted to their age**. Children understand the topic and concept of public space and mobility better than one might expect – it simply needs a clear introduction, tasks and goals, given in their own language and/or with the use of pictures. The support and involvement of teachers or pedagogues is therefore recommended.
3. Many measures only work if schools are interested in participating. It is best to approach schools with **ready-made materials**, programmemes, introductory lessons etc. In this way schools can get an idea of the situation and the measure becomes more visible.
4. Schools usually plan far ahead. An **early and intensive promotion** of the offer is therefore very important.
5. Try to **involve or reach the parents**, for example by inviting them to an event. Often the "issue" lies with the car driving parents, not with the children.
6. When teachers need to borrow a toolbox, it helps to make the **process as easy as possible** to reserve it, borrow it and give it back. It is definitely worth checking into the possibility of an on-line solution.
7. If you ask children about their opinion of public space, only do so if their opinion is taken seriously and ideally, the municipality is open to **implement some of their wishes**. Also, expectation management is very important: They need to understand that political and implementation processes take time.
8. Note that **not all children own a bicycle**. Find solutions so that all children can participate.

Tips in a nutshell


- Once developed, you can use the material and toolbox multiple times.
- Finding a motivated school and teacher is essential.
- Reach the parents to “educate” them as well.

3.2.5 Empowerment for active mobility

Empowering the children to move independently in their environment is one of the most important goals of the project. Children should be able to use public space. To achieve this, not only must real public space that is open-to-all be created, but the children must also be taught how to conquer this space.

Table 6: Measures of Empowerment of active mobility

Measure title	Description	Outcome/Valuation
Graz		
Bicycle Training 	<p>Bicycle education is part of the curriculum of fourth graders in Austria. Children have to pass a bicycle test at the age of 10. Test results are alarmingly bad in the city of Graz, compared to the countryside. Bicycle training (especially training in real traffic areas) is needed in the city of Graz. The government supports the bicycle training for children.</p>	<p>In total 114 classes with around 2000 children were trained in the real traffic situation, by bicycle trainers of FGM-AMOR within the Metamorphosis project phase. Regular consultation with the local government is taking place to increase the effect of the bicycle training and to get more schools to participate in the training.</p>
Munich		
Interactive Walking Game 	<p>The game “kreuz & quer” is designed to motivate children and their families to actively walk or cycle in their everyday life. The goal is to collect as many kilometres as possible by finding and scanning small boxes scattered around the neighbourhood. RFID cards and maps of the neighbourhood are distributed via schools or public libraries for free. The game lasts about seven weeks. An online ranking shows which team is in the lead.</p>	<p>The game was very well received, and the level of active mobility was much higher during the game than it was before. Most users wished for another implementation in the future. Children and their families were highly motivated to collect points. Engagement and interaction have improved; the game has proven to be subject to many conversations.</p>
Walking Bus 	<p>The “walking bus” of Munich consists of a small group of elementary students on their way to school. Every morning the children meet at a “bus stop” and walk to school together. Also parents accompany the group. When at school, the children pin a white sticker on a grey rabbit poster. Step by step, the rabbit turns white again as walking instead of being taken by car to school contributes to cleaner air.</p>	<p>The walking bus is an effective and yet playful way to encourage active travel to school and to bring neighbours closer. It can be easily transferred to other municipalities. However, the commitment of the school management, teachers and above all parents is crucial to the success of the project. For this, continuous personal contact and motivation is needed.</p>
Bike to School Competition 	<p>“Bike to school” is a three-week competition which encourages students to cycle to school. Students, teachers and parents compete together as a team for their school against other schools. The aim is to cycle as many kilometres as possible. Therefore, all kilometers cycled are listed online. All participating schools receive a certificate for participating.</p>	<p>The principle is simple, but the success also depends on the technical implementation. Support is comparably time-consuming. Experience has shown that it makes sense to categorise the competition (amount of participants, driven distance etc.).</p>
School Tour 	<p>The “school tour” is a half-day workshop held for 5th and 6th graders by external experts. At each workshop, two to three classes participate. The classes compete in an interactive quiz-show about road-traffic and respectful mobility and try out some exercises on the bike. A mechanic teaches them how to repair bikes.</p>	<p>The implementation is relatively personnel- and thus cost-intensive but the topic is very important as more and more students are not safe in cycling.</p>
Cycling Rally	<p>The cycling rally is a full-day interactive course for children and young people encouraging physical and mental fitness. Up to 25 stations can be traced along the course by bike – accompanied by parents, friends or independently. Each with an action or puzzle solving task. The rally is not a</p>	<p>Above all, the implementation requires sufficient space and time for organisation and coordination with local associations. Weather-dependence makes planning also more difficult.</p>

Measure title	Description	Outcome/Valuation
	competition. It is all about having fun together.	
Merano		
Pedibus 	The introduction of the pedibus is intended to reduce school traffic. In addition to increasing safety on the way to school, a workshop with site visits was organised where children pointed out dangerous spots. The goal is to optimise the furniture on the routes by designing the pedibus stops with colours, games or child-friendly waiting areas.	In a trial phase, one pedibus line was implemented during six weeks, with three to five participants. Within the first year, two more lines were opened. Around 30 pupils walking to school every day. In the workshop “bus stops” were painted in colour, making the pedibus more visible.
Tilburg		
Bike Doctor 	Once a year the primary school invites a bike doctor to school. All bicycles are checked by means of five essential points of possible improvement. The bikes get an OK-sticker when it is approved and receive a checklist with points of attentions when it is disapproved. During this activity some classes have a presentation about bike safety and play a memory game about the same topic.	The measure ensures that school children who have access to a bike can use their bikes safely. The children are made more aware on the benefits of cycling and have a better idea what each part of the bike is for. The cooperation with a local bike mender strengthens the neighbourhood's community.
Southampton		
Let's ride 	Let's Ride Southampton is an annual cycling event in the city. It is a 6 km circuit through the city. The event is traffic free, some roads are closed for the day – and open to all, which means that trained Ride Leaders run group rides into the city center on the day so people from the edges of the city can join. The event also developed a culture and celebration of cycling (of all kinds) amongst businesses and community.	In 2019, over 10,000 people attended the event. Sponsorship allows the delivery of a large scale event in the city center. To ensure that the impact is not a 'one-off' the event is supported by community activities and a regular programme of activities. This combination ensures that cycling remains high profile but also that residents and young people have practical activities relevant to their neighbourhood and interests.
Zurich		
Bike repair workshop 	A professional bike mechanics shows inhabitants of settlements or school children how to carry out minor bike repairs, e.g. how to oil the chain, adjust the brakes, change the tyre etc. The participants of the workshops work on their bikes under the supervision of the bike mechanic. The goal is to enable them to take care of their bikes themselves.	The bike repair workshops are easy to organise and potentially have a great influence as a broken bike is quickly a reason not to use it. Adults as well as teens and children can participate. If the workshop is integrated in another event (like a settlement brunch), it might also motivate others than the cyclists to participate, which strengthens the neighbourhood-ness.
School mobility week 	The city of Zurich offers to schools a programme for project days and weeks on mobility (“Mobilität erleben”). For the purposes of Metamorphosis, the programme was adapted to include the topic “public space”. The main goal is to sensitise pupils to the issues of sustainable mobility and the use of public space. The project weeks were conducted in two schools.	A school project week or single days is a great way to teach citizens from a young age why it is important to use sustainable mobility tools and that they can have a say in how public space should be used. To have impact, it should be offered to schools in the whole city. Zurich included the

Measure title	Description	Outcome/Valuation
Neighbourhood treasure map 	<p>In a 1-day-workshop, children between 6 and 12 years old revealed their favourite spots in the neighbourhood. From each spot they took a picture of a small detail that was then turned into a playing card. The map of the neighbourhood with all favourite spots and the playing cards were professionally designed and printed as a game: the playing cards must be assigned to the correct location on the card. The game aims at encouraging inhabitants to re-discover their neighbourhood on foot.</p>	<p>topic “public space” in their standard programme “Mobilität erleben”.</p> <p>The workshop was conducted in two neighbourhoods, working together with the community center. The final product, the game, is attractive, child-friendly and a nice way to encourage people to discover their neighbourhood from a children’s perspective. It is given away for free at the community centres and the city and met quite a high demand. As a result a third district in the city ordered a treasure map for its neighbourhood.</p>
Bike course for women 	<p>In one neighbourhood, women were invited to participate in a bike course. It was aimed at total beginners. The course was planned to take place five times for two hours. The course was led by a female employee of the local bike organisation “Pro Velo”.</p>	<p>Three women participated. Many tackled women have said that they are afraid of cycling, so they didn’t participate. It seems that adults have more fear to learn to bike. Therefore a specialised offer like this is a “market gap”. It is an opportunity to promote cycling.</p>

Lessons learnt/recommendations

Games, school project weeks, courses for adults and children or the introduction of a pedi-bus: The diversity of the measures of this activity field is great. Here is an attempt to summarize the most important findings:

1. First, one needs to find out: Why does someone need to be empowered? What is the **source of the “problem”**? Adapt the measure accordingly. Before a measure can lead to an improvement of a situation, the cause must be identified.
2. Schools are a good channel for reaching as many children from different backgrounds as possible. Many measures are therefore best implemented in **collaboration with schools**.
3. A successful implementation often requires the right partners with the **necessary expertise**. If e.g. the target group is adults with a migration background, the teacher/course leader must prepare the content differently than for children. This applies not only to the implementation, but also to the preparation of material.
4. It takes **motivated teachers or staff** to motivate children to use active mobility. They will notice if a measure is a mere exercise of duty or a matter of the heart.
5. If the empowerment measure is aimed at a target group that is hard to reach (e.g. due to language barriers), it is crucial to **find key persons with personal contacts** to the target audience. It is for example helpful to collaborate with a community center.
6. A **competition setting** works very well with children, e.g. when a school class competes against other classes or another school. Incentives like this help to keep them motivated over a longer period of time.
7. In some measures, adults are the actual target group, although the focus of the project lies on children. The reason for this is that **parents have a major influence** on their children’s mobility behaviour. So sometimes it makes sense to implement a measure for adults which also influences children in the medium term.
8. If the measure is aimed at children: **Children are easiest to reach during school time** rather than in their leisure time. Otherwise, there is a risk that too few children will participate.
9. Note that **not all children own a bicycle**. Find solutions so that all children can participate.

Tips in a nutshell

- Find out: why does someone need to be empowered? What is the source of the “problem”? Adapt the measure.
- Find partner with the necessary expertise.
- Consider the background of the target group. Find solutions so that everyone can participate, regardless of their backgrounds.

3.2.6 Cancelled or unsuccessful measures

Some planned measures had to be cancelled or were not successfully completed. Therefore, no factsheets were produced on these measures and they cannot be found in the summaries above. To get the full picture and to learn from the failures, the following table shows the non-implemented measures.

Description	Outcome/Valuation
Alba Iulia	
Street Delivery One main boulevard situated in the city center of Alba Iulia was to be temporarily closed to traffic for three days in Spring 2018, in order to organize Street Delivery which is a smart city event bringing the technology into the streets where people and children could interact.	Street Delivery is a project developed in the capital city of Romania and replicated among different cities. The concept belongs to an NGO and they support the organization of the movement in the cities interested. They try to bring together artists, artisans, architects, free lancers and so on. The event was cancelled due to the lack of resources and organizational problems of the NGO that supports the event. They had many events in other cities so they decided to cancel/postpone the event in Alba Iulia.
Merano	
Street closures In a busy street without much green space and around it, on Saturdays the streets should be opened for the population and closed for motorised traffic.	Four street closures were planned in Manzoni Strasse. Those 4 dates were originally set by the local police in spring on the desired dates 2019. Then the dates were cancelled again because of fears that the street closure would overlap with other major events. There were no other free dates (Saturdays) available to carry out the measure. The alternative idea to move the street closure to another place (to another road) had to be dropped because no suitable road was found. The difficulty therefore lay in early planning and communication between departments, but also in the lack of alternatives.
Mobile bike repair point At the official bike rental at the Thermenplatz, one of the (very rarely rented) cargobikes should be converted into a mobile bike workshop that is accessible to everyone. On several days there should be the possibility to receive guidance from a mechanic. One idea was to use the bikes also for different events (rentals to associations etc. all over the city).	The municipality hires retired people for the bike rental-shop. Most of them never worked in a shop like that, and don't have the knowledge to do the repairs. The feedback from customers has therefore been rather negative. In addition, the topic of insurance / theft was an obstacle. The idea has been dropped, as there is already a similar service from the city (a senior can be booked on request with his mobile bike workshop).
Tilburg	
Interventions in public space Children choose a place in the school surrounding, close it for public and use it to play, have a picnic or something else. For example, closing a parking space until parents come to pick up the kids. Meanwhile, school, children, parents and neighbourhood can discuss about for example, car usage.	Cancelled, because schools are restrained. Car usage for example, is a very sensitive subject and schools prefer not to discuss about it in public. This shows that sensitive issues require a lot of tact and sensitivity, the right moment and also good support for any negative feedback.
Zurich	
Guided bike tours The guided bike tour in the neighbourhood should encourage inhabitants of the two settlements to use their bikes more often. The bicycle association "Pro Velo Zürich" guides the tour. It will last around 2 to 3 hours and will lead to several nice spots in the two neighbourhoods. On the way, the guides will also demonstrate how to deal with difficult traffic situations, e.g. difficult crossings. Children are encouraged to participate with their parents.	The bike tours had to be cancelled in both settlements due to too few registrations. The disinterest can have many reasons. On the one hand a bad communication (the offer is not known), further an oversupply (thus no need, since the need is covered otherwise), or simply no interest. A deeper analysis of the reasons would be necessary if the measure were to be repeated.

4 Overall learnings and recommendations

In addition to the findings from the individual implementations, there are also lessons learnt from the overall project that are more of a general nature. In the following, the most important findings regarding the involvement of children, the general population as target group and making changes to the public space are discussed.

Children were one of the main target groups of Metamorphosis. When working with children, however, there are some important things to consider. Even more so, as many measures require external experts that might not be used to working with children.

- **Adapt content and implementation to the needs of children:** Adapt the measures according to the age of the children that you want to reach. Simplify the content where necessary, and work with clear key statements. Allow enough time for questions and discussions with the children. Really try to comprehend their thoughts are on the subject, so you get the children's view and understanding. Work with them on eye-level. Workshops are a good way to gather information about the needs of the children as well as the local residents. Also plan enough breaks and time during the implementation. If the implementation is not carried out with a school, it is important to understand that children "sacrifice" their free time to work with you.
- **Children as experts:** Make children feel that they are taken seriously - AND do indeed take their ideas and concerns seriously. When asking for their ideas, it is important that some of the ideas can be implemented, otherwise the measure is prone to lead to disappointment. Ensure that the ideas are not too far removed from reality. Also communicate the time it takes to implement the ideas. This is even more important because especially measures concerning the design of public space can be seen as an entry into political participation.
- **Design:** Aesthetics change with age. Allow children to bring in their perception of "beauty". When a product is designed by a graphic designer, make sure the design is child-friendly (maybe by testing it with a group of children).

The target group for many measures was the local population. In this matter, there are also some general recommendations to give:

- **Finding the right partner:** Make sure to find the right partner to help with the implementation. Implementing ideas top-down usually will not work as well as if the local population, the target group, is involved. They know the conditions in the neighbourhood. Also, try to involve local partners (local shops, museums, schools, ...) at an early stage of the implementation as they can contribute specific knowledge that contributes to the success of the measure.
- **Communication and promotion:** Make sure that parents as well as children are informed comprehensively about the implementation. In many cities, there is a wide offer of leisure activities, so to stand out you need to promote the measure intensively. The advertising works best when local associations or groups promote the implementation within their networks.

Metamorphosis aimed at changing the public space. There are some general learnings to consider in this matter:

- **Commitment and support of the local municipality:** Make sure to involve the local authority as early as possible. Not only if you need permits, e.g. to use the public space, but also if you plan on having long-term changes in the public space, if you wish for the implementation of ideas of children or if you hope to spread a product in schools. Political support also helps to deal with potential opponents.
- **Temporary changes:** In many cases, it is recommended to start with a temporary trial. Temporary change allows to make amendments and tailor the implementation to the local community's needs and to design a permanent scheme which works for everyone. Also, it allows people to get used to a change e.g. in public space.

- **Location:** Even if the implementation is more difficult in neighbourhoods which are car-oriented, the effort is worth it. It will likely take more time, but the change and effect will be greater. Car is just a mode of transport, so it is important that it is the people in them who are engaged.

5 Long-term implications of Metamorphosis

The project was limited to a period of three years. During these three years - as described above - many different measures were carried out, which contributed to achieving the goal of Metamorphosis - to transform car-oriented neighbourhoods into child-friendly places through innovative temporary interventions. But the project has also triggered measures that demonstrate the sustainability of the project. Several measures will be continued beyond the project lifetime or were initiated by the project and will be implemented after the end of the project. Therefore, the implications of the project should not be limited to the three years but should also be considered beyond that.

Several long-lasting effects of the project in all cities can be presented:

- **Alba Iulia:** The success of the **urban gardening project** has encouraged the city to continue the project. The initial idea of a network is therefore not entirely abandoned, even if the focus is currently (due to the pandemic) on the one existing garden in the Citadel. This will serve as a model for other cities throughout the country.
- **Graz:** For the City of Graz, the measure **public breakfast** was an eye opener, in which the neighbours and the municipality experienced how this street could look like when it is opened to public use. The city of Graz decided to **transform it into a permanent pedestrian zone** and the nearby streets into encounter zones where pedestrians have priority rights.
- **Southampton:** Southampton will continue to offer **Community Street Closures** free to residents and will promote them online and through workshops to increase uptake, especially by community groups. On top of this, additional permanent timed closures outside schools – “**School Streets**” – will be implemented as and when funding becomes available and especially if national guidance/law changes to facilitate this. Transforming Cities funding from the UK Government will help the city to build on the aims of the Metamorphosis project for more child-friendly streets by creating new **Active Travel Zones** in two neighbourhoods.
- **Zurich:** In the neighbourhood Friesenberg, the game **neighbourhood treasure map** has been developed with the support of Metamorphosis. Thus, three instead of two games were developed. The measure **neighbourhood analysis** has been integrated as a module in the regular “Mobilität erleben” programme offered by the city to primary and secondary schools and has already been carried out many times. The neighbourhood analysis will also serve as a tool for neighbourhood development in the city of Zurich and can be used when the inclusion of children is required. The implementation of the neighbourhood analysis has led to the installation of an **encounter zone**. The same applies to the follow-up measure of the enhancement of the old village square in the Grünau district which has been upgraded in terms of design. The needs assessment was carried out in a participatory process.
- **Merano:** The **Pedibus** will be continued and will be extended by three lines for the next school year. A guideline is being prepared to show how the stops should be sign-posted and how the new lines can be installed. Further a workshop with the municipality is planned to develop a concept for **street closures** in different neighbourhoods. The **urban gardening** project might be continued, but there are a lot of open questions which must be discussed.
- **Tilburg:** The city will continue offering some of the measures to all the schools in Tilburg (yearly) such as the **Schoolscan**, **Bikedoctor** and **Safe to school**. Safe to school will even be extended to all the schools in Tilburg. Besides that, the city will carry out a survey in all schools to determine their needs in order to increase traffic safety. In the Q2 2020 all 61 primary schools were visited or approached to develop specific programmes addressing safety for those schools. 40 schools now participate in 264 measures. Tilburg Veilig Naar School now contains, in addition to the projects

for primary schools, projects at secondary-, vocational- and special education schools. In 2021 Tilburg will start a project on day care centres in which the parents will also be involved.

The city supports the schools to also involve the parents and children in the planned measures for a bigger impact. Thanks to Metamorphosis the city was able to develop a traffic safety agenda with attention for the vulnerable group of schoolchildren. The result is that the city now has now also reserved a budget to carry out the measures. The Metamorphosis measures even extend beyond the City of Tilburg; the two villages Udenhout and Berkel-Enschot will carry out some of the implemented measures.

- **Munich:** The city plans to carry out the **interactive walking game** three times a year, with the possibility of special editions, e.g. a summer holiday special where two neighbourhoods compete against each other.

For schools a lot of measures will be available also after the Metamorphosis project. The **walking bus** will be continued and probably redesigned (digitalised). The **bike to school** competition is a yearly competition, which is organised by the city every June. The two **toolboxes** are still available for schools. From now on the **intensive cycle training** is called “fit for the cycling test” and will be carried out around 15 times in 2020. Plans also already exist for 2021. The measure **school heroes** will be continued. The pilot project of the **school environment checks** with the focus on 7th and 8th grades is currently being adapted in Munich in such a way that it can be applied in the entire city. It is to be offered permanently in 2020. The project has a high visibility in Munich because it concerns the topic of school route safety.

For the **temporary street opening** new sites have already been found for 2020 and the project will be continued and expanded. The initiative **walking trees** will be continued. The **mobility share point for families** will be continued/reinstalled in 2020, the garage has been built and electricity is available to charge the bikes. At the moment there are only some last legal questions still to be clarified. The aim is to be able to offer the mobility share points on a permanent basis. Out of the Metamorphosis project a new idea has been developed: **The cycling training area** will be on a very large section of the “Theresienwiese”, initially as a pilot project. The city will set up markings (slalom, snail races, typical traffic situations in real traffic, etc.). In the next years the city will decide in what form the cycling training will be continued.

As demonstrated above, several successful measures will be pursued further and offered and organised beyond the end of the project. This shows that the municipalities are interested in continuing to work towards the goals of Metamorphosis and making the cities more child friendly. In this way, permanent change can be achieved.

6 Replanning measures due to the COVID pandemic

The year 2020 is marked by the COVID-19 pandemic. Although many measures of Metamorphosis were to take place outdoors, some of the dates already set had to be cancelled or postponed. In some cases, however, creative changes were made, which the partners designed without further considerations. This chapter is dedicated to the challenges of COVID, and how some measures or the achievement of objectives had to be changed.

6.1 Cancelled implementations and measures

The last measures within the Metamorphosis Project were scheduled in spring 2020. However, due to the Corona crisis, some planned events had to be cancelled.

- Munich: The game "beat the street" had to be interrupted, and in the end cancelled in the district Domagkpark/Parkstadt Schwabing due to COVID-19. The reason for that was that, as a city, it could not be guaranteed that social distancing rules would be maintained.

It must also be said that, in general, processes took significantly longer than before COVID-19. The main reason is that children tended to stay at home now, and many parents had very little time for work due to the need for childcare. Therefore, for example, the legal issues for the mobility station for families were not answered for months, and the City are still in the process of checking.

6.2 Cancelled Meetings; change of internal exchange

The Metamorphosis Project is characterised by the fact that the participating cities exchange ideas and learn from each other. Meetings and the transfer of knowledge are central to this process. At each of the meetings, the implemented measures were presented and explained. But more importantly was the interactive part, where the cities and the stewards supported each other with ideas, feedback and interactive sessions or workshops. The transfer of knowledge within the project team was thus ensured, and the resulting benefits are based on the creativity of all the participants.

This situation changed with the pandemic. The consortium partners' meeting in Tilburg had to be cancelled. The meeting was postponed to be held online later, but the important interactive (and timely) exchange was missing. The shift to online meeting was also the start of a rethinking of the remaining implementation of the project. As described in chapter 6.3 below, the use of the internet has become a more important tool for the Metamorphosis project due to COVID.

This rethink has taken place not only within the consortium, but also in other cities and institutions. Thus, the move to increase communications about the Metamorphosis project through online channels became successful. In the last months of the project, more people could be reached through webinars, social media and online exchanges, even though these on their own, are not always ideal (i.e. without the face-to-face element).

6.3 Adapted measures and implementations

After initial easing of lockdown in some countries, various remaining measures could still be implemented in an adapted form. New media were also increasingly used; (partial) events were offered online, for example. This had an impact on the number of visitors as well as on the audience reached, as participation in certain events was no longer possible for everyone.

- Munich: The measures were implemented, but dates had to be changed. To also continue with the "beat the street" game, there was a new feature integrated into the software. The new feature is supposed to maintain the distance between participants when playing the game. In action, this means that participants have to wait for 5 seconds after each "tapping" of a box until the next card can be attached to the specific box. A countdown on the display shows how many seconds participants have to wait. The new feature was integrated during a summer special of the game lasting from July 20th to September 20th. This is to offer an option for children and families to be outdoors even without holidays.

- Graz: Lendwirbel 2020 happened online. Even though it's not part of the Metamorphosis project anymore, it might be interesting to learn about the option of an online event. It was, as always, a platform to talk about the topics of public space, child friendly cities etc. FGM used the event to do another Webinar on street-transformers and 20 good reasons.
- Alba Iulia: The planned events had to be cancelled. The city had some events planned in the urban garden as well as two further street closures. A big one, similar to the 2019 Bubble Parade and a smaller event with different workshops for children. After the restrictions were loosened, smaller events in the Urban Garden were implemented with a small amount of people, so that social distancing was possible. The held events were: a picnic, a painting workshop, a cooking workshop for children and parents, an educational workshop, and a movie night.
- Tilburg: The schools of Tilburg implemented the “temporary street closure due to COVID-19/ Schoolstreet”. The aim of this temporary measure was to make sure that parents and children keep social distance (1.5 m) while bringing/ picking- up the children to/ from school. 12 primary schools participated which means they got fences, road signs and the permission from the municipality to close the street/ parking space for half an hour twice a day. In those schools more parents brought the children by walking or by bicycle.

6.4 Additional and Scale-up Implementations

In Graz the time over the summer months, mainly from July until September was used to implement additional measures and mostly scale up existing measures in different neighbourhoods and even in different cities in Austria.

- Revitalisation of Home Zones: in Graz several home zones have been implemented years ago and often the residents have forgotten how to use them. To counteract this a brochure was designed with information, guidelines for games, etc. This brochure was distributed within 10 of the home zones, during action days where residents were invited to join in the games. In addition, feedback was collected. The action reached 1430 people with 354 children and parents being actively involved. The brochure is available in EN and DE on the Metamorphosis website.
- Scale-up activities in other neighbourhoods / districts in Graz: The METAMORPHOSIS activities were spread out to other districts in Graz like Geidorf and Jakomini, Flosslend. There were different street liberations following the rules of Corona (limited number, distance) but as the actions were carried out as open-air activities there was a high number of participants. Although no exact number of participants is available, a rough estimation resulted in 200 -300 Persons per event.
- Scale-up activities for NGOs in Graz and Vienna: METAMORPHOSIS inspired and supported the “Place Making” initiatives in Graz (Move-IT) and Vienna (Platz für Wien) by providing know how, METAMORPHOSIS Information material, support for printing and event cost and particularly the space transformer cargo bikes. The initiatives are vital and successful and collected in Graz 12.000 and in Vienna 50.000 signatures of supporters. This is an important pool of people who influence the political decisions in a people friendly way, and they play an important role as counterpart to the powerful car lobby.
- Cargo bike with tool set of games, toys, and various materials: In METAMORPHOSIS a cargo bike was developed and built to be used at neighbourhood street parties, street birthday parties and other children's parties in public space. This measure was carried out in Co-operation with the “CityChangerCargoBike” project. In total the bikes were rented out on 27 days between April and September. The reported number of participants (Children/parents) who took advantage of this service and played /used the tools) was 570.
Cargo bike based Mobile Garden: This measure was also carried out in Co-operation with the “CityChangerCargoBike” project. One of the cargo bike based “Space Transformers” was upgraded to a moveable garden. The intention is that the

garden acts as a crystallisation point where people start talking, taking care of the plants and thus, in the long-run, counteract loneliness among people living in this area.

7 Conclusion

Project Metamorphosis can be seen as a success, given the large number of successful implementations, and the generally positive feedback from all those who participated in the measures, as well as some insightful lessons that were learnt as part of the process. It is remarkable how many ideas were implemented in the end, how many people were affected and actively involved, and how all seven cities can present many success stories.

The project lasted three year, although the implementation phase was limited to two years in most cities, due to the need for planning, vision building, etc. It cannot be expected that fundamental changes in all cities occur in those two years. Behavioural patterns do not always change over such a short period. However, the project has given many cities the opportunity to try things out, and perhaps even pursue them longer-term in sustainable mobility and the child-friendly design of public spaces. It has not been enough time in all cities to institutionalise the principles of Metamorphosis (e.g. in a Sustainable Urban Mobility Plan), but in most partner cities the idea has been planted, if not now embedded, and the project definitely sensitised the city administrations involved to these important issues. Whether these planted ideas will start to sprout fully can only be fully seen in the coming years.

If we go back to the beginning of the project and its objectives, transformation of neighbourhoods in a child-friendly way to increase the quality of life for all citizens, it can be said that all partners involved have worked towards achieving this goal. The many creative measures, the networking, the exchange between the cities and beyond, have all led to the achievement of this goal. During this implementation project phase, the quality of life in the "Metamorphosis" neighbourhoods has improved, as many measures have changed the everyday realities of local residents. Playing in the neighbourhood, free movement, face-to-face social networking, and bringing neighbours together - all this has led to a strengthening of "neighbourhoodness" and a more sustainable approach to mobility, as well as benefits for public health and social cohesion.