MCube
Munich Cluster for the Future of Mobility in Metropolitan Regions

MCube Innovation Recommendation 06

Resilient transitions to low-carbon mobility

Lessons for transformative urban mobility governance

For sustainable and socially inclusive mobility, we need responsible political decisions. The Munich Cluster for the Future of Mobility (MCube) uses applied and transdisciplinary research to provide a basis for decision-making on the mobility of the future. With the MCube Innovation Recommendations series, we communicate research results and recommendations for action to policy-makers and all interested.

Context

Crises can greatly impact how we move through cities. Think of the Covid-19 pandemic: From one moment to the next, our mobilty behaviour had to drastically change. More people used active modes of mobility than ever, but others were confined to their homes. Born out of an emergency, the pandemic showed what the future of urban mobility might look like.

We wanted to know: What are residents' wishes for the future of mobility? What can we learn from the experience of the Covid-19 pandemic for the transformation of urban mobility systems? And what does this mean for the design of urban mobility policies that can withstand disruptive crises such as a global pandemic? The insights in this innovation recommendation are mainly addressed at urban mobility planners, municipal and regional administrations, and public transport operators.

For this innovation recommendation, first, we conducted a survey among the population of Munich to know what residents expect from the future of urban mobility. Second, we visited three European metropolitan areas (Copenhagen, Lisbon, and Madrid). We talked to mobility planners, policymakers, and public transport operators to learn from their experiences and to identify avenues for resilient transformative mobility policies. We concluded with an online workshop reuniting policymakers, planners and public transport operators from Lisbon, Madrid and Munich, in which we discussed our findings with them to consolidate them into recommendations.

In the context of the MCube research project on transformative mobility experiments (TrEx), we also conducted an analysis of policy documents and press releases from eight European cities. We identified the measures that they implemented to mitigate the mobility-related challenges of the Covid-19 pandemic and how those measures connect to their long-term mobility plans and policy priorities. The findings from this analysis can be consulted in the following policy brief: **Meinherz, F. and Middleton, B. (2023) Urban mobility policy in pandemic times: The mobility policy priorities of eight European cities before and during Covid-19. Munich: TraMS lab / Technical University of Munich.**

People demand a transition to low-carbon urban mobilities...

Thus far, efforts to decarbonise mobility have not shown the desired effect. CO_2 emissions from mobility and transport continue to rise, as does car ownership: more and more households own more and more cars. Does this mean that the mobility transition is doomed because people refuse to change? Is the promotion of renewable technologies the only way forward?

Recent experiences suggest otherwise. The Covid-19 pandemic showed that mobility patterns can change dramatically in a short time. This means that people's mobility practices and the role that mobility plays in their everyday lives can change.

But do people need an emergency of the extent of a global pandemic to change their mobility routines and think about a different future? Our findings suggest otherwise. In a survey that we conducted among 1,040 Munich residents, we asked the participants how they envision the future of mobility in Munich in five to ten years. Our results show that most of the population is fed up with the car-centric status quo of urban mobility and desires a different future, with better cycling infrastructure, fewer cars, a strong public transport system,

and green, calm urban spaces. These were some of the most common answers (multiple answers were possible):

33% **wish for less space given to cars**
(e.g. less parking space, car-free neighbourhoods)

30% **wish for more cycling infrastructure**

28% **wish for better public transport infrastructure**
(e.g. more frequent and reliable, more lines)

17% **wish for more sustainability**
(e.g. more green, less CO_2-emissions)

9% **wish for more walking infrastructure**

Residents' wishes for future mobility in Munich (selection, multiple answers were possible, N = 1,040). In our sample, the percentage of Germans and people with an academic background was slightly higher and the percentage of people owning a car was slightly lower than in the general population of Munich.

Munich

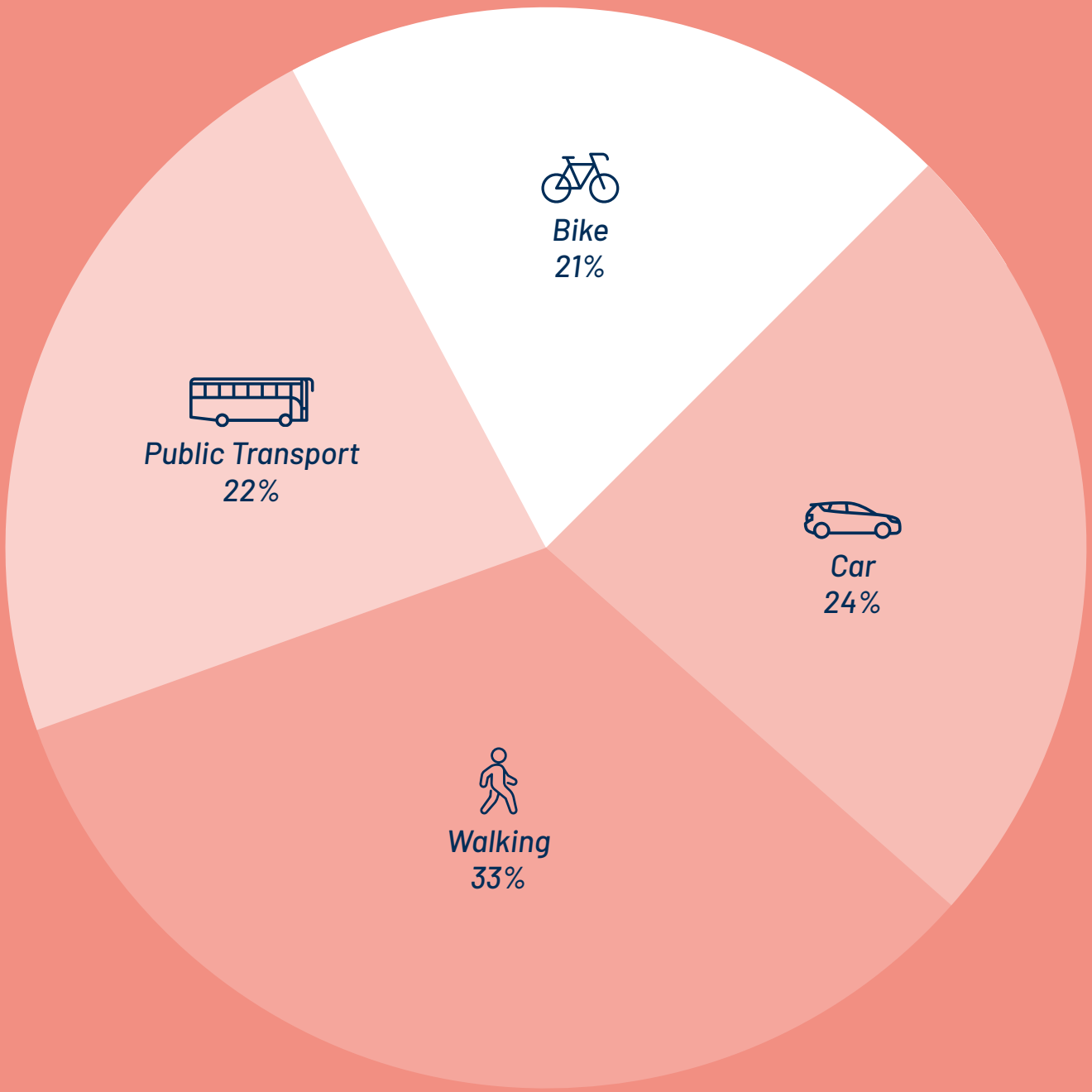
Congestion Index

23

Population

1,594,632

Modal Split (2023)



...now it's up to urban planners and policymakers to implement it!

Residents are up for change – and they see the city administration and politicians as responsible for implementing that change.

Policymakers and urban administrators must translate residents' desire for a green urban mobility future into specific policies and interventions on the ground.

Change in the domain of mobility policy and governance sometimes seems impossibly slow. But this need not be the case! During Covid-19, urban planners, mobility providers, and governments were quick to adjust to the challenges of the pandemic. Many cities seized this disruption to set new directions for the future of urban mobility. They implemented measures in favour of low-carbon mobilities and improved the attractiveness of urban spaces. We looked at Copenhagen, Madrid, and Lisbon to understand how they tackled the pandemic and what their experiences can teach us for the implementation of residents' wishes for a green urban mobility future in Munich and elsewhere.

Copenhagen

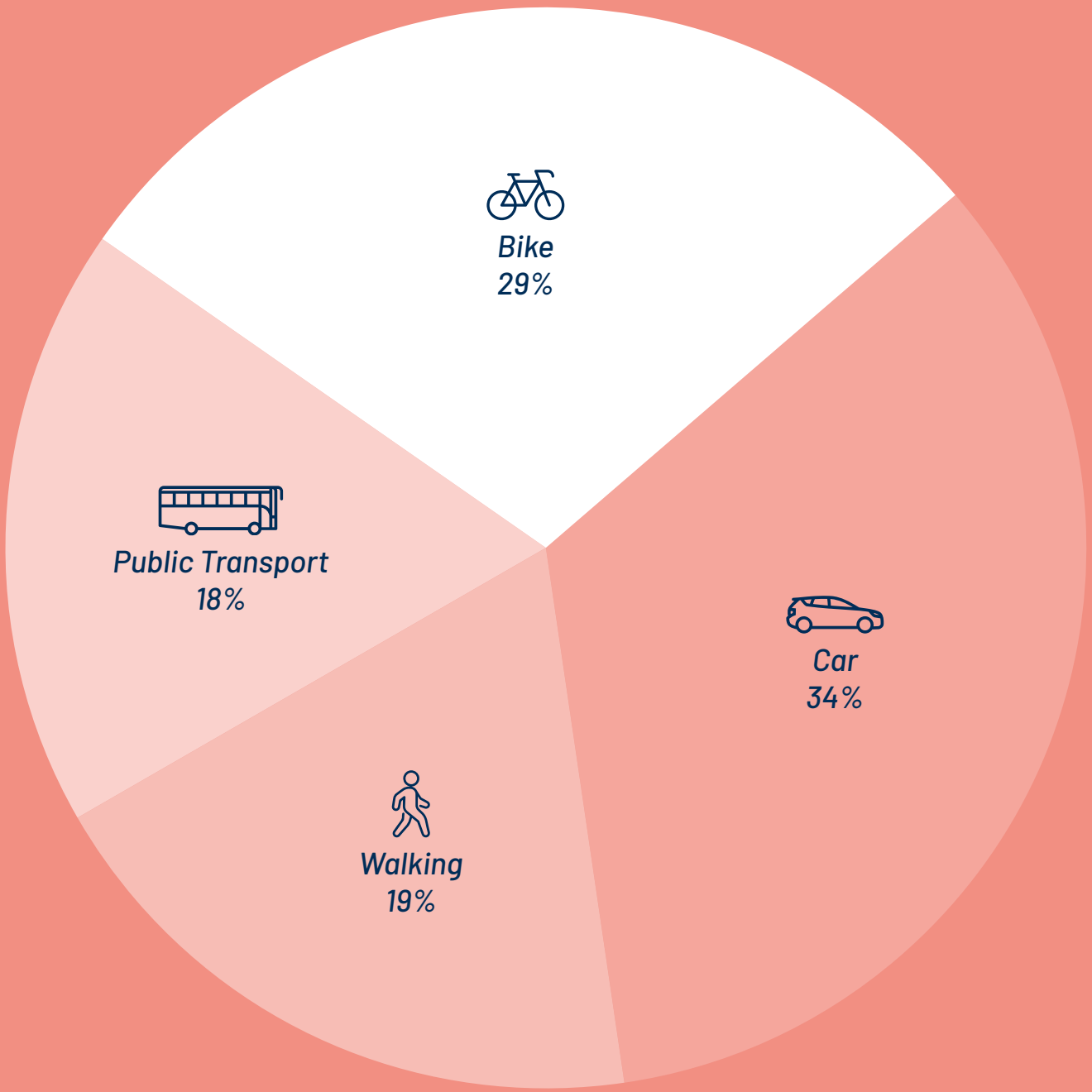
Congestion Index

20

Population

805,420

Modal Split (2017)



In 2019, Copenhagen opened a new, fully underground circular metro line in the city centre. The line substitutes the bus lines that previously operated there. The circular line was expected to double ridership; an effect that did not materialise due to the interference of the Covid-19 pandemic. Nonetheless, metro ridership numbers recovered quickly, whereas bus ridership experienced a more lasting blow.

Copenhagen did not implement any measures in favour of cycling or walking during the pandemic. Painted infrastructure, the go-to standard for transitory interventions, was not deemed pertinent because Copenhagen already has a complete and well-connected cycling network and is attractive for pedestrians.

Lisbon

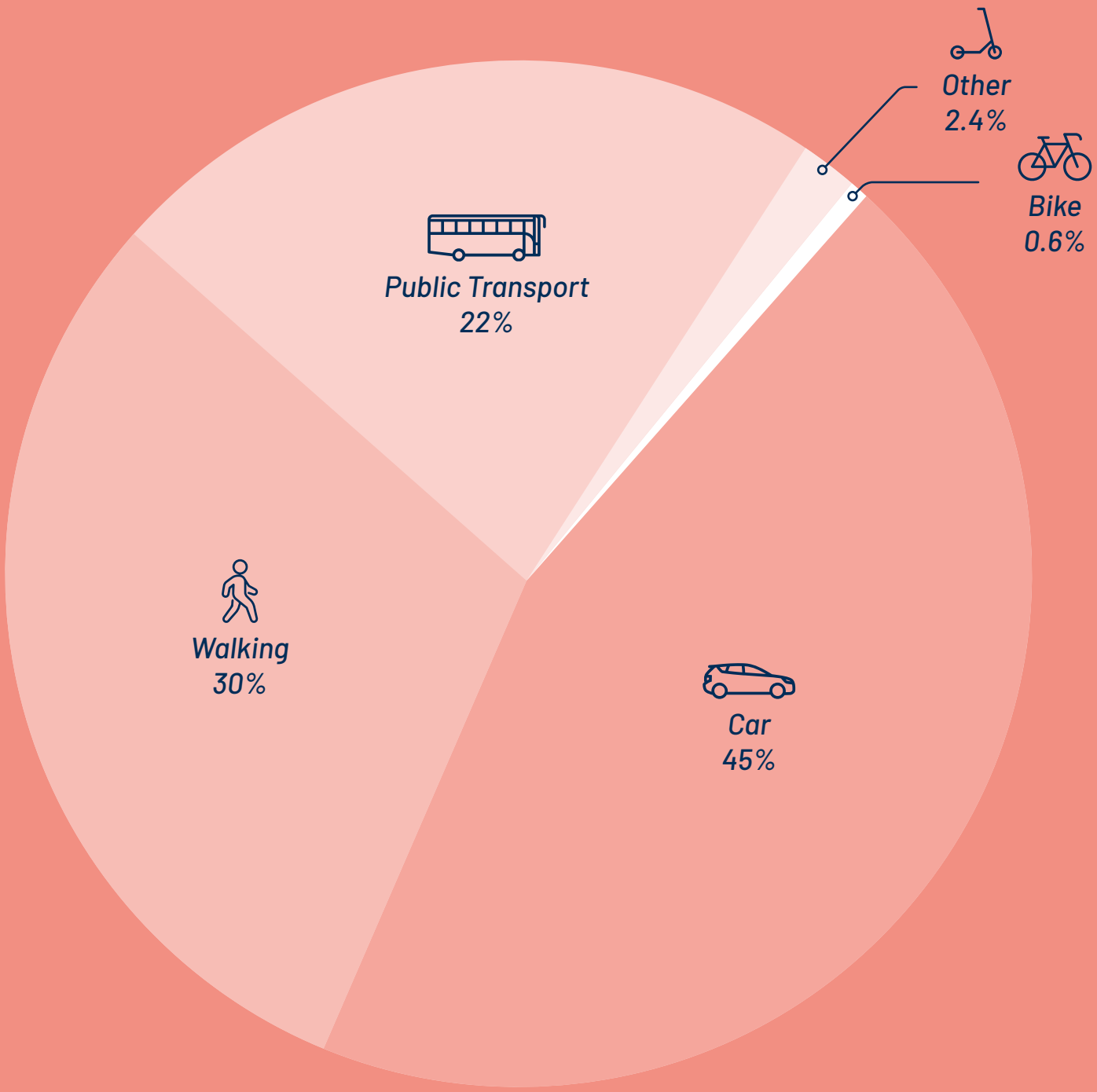
Congestion Index

22

Population

2,957,000

Modal Split (2017)



Lisbon had been consolidating its metropolitan bus network by introducing a regional transport consortium that organises the network and elaborates the conditions for the many different providers. In 2019, Lisbon introduced a new transport pass, which drastically reduced fees for people regularly travelling on public transport and simplified the fare system. As a result, passenger numbers increased until the pandemic hit, but also recovered relatively quickly once lockdowns were lifted.

Already before the pandemic, Lisbon had been investing in making public spaces more attractive for pedestrians and residents. Lisbon has also been introducing shared bicycles since 2018. During the pandemic, Lisbon introduced pop-up cycle lanes on some streets. One of the pop-up cycle lanes created a lot of controversy and had to be remodelled several times until being rendered definitive in the years following the lockdowns. Lisbon also introduced a subsidy on the purchase of bicycles during the pandemic.

Madrid

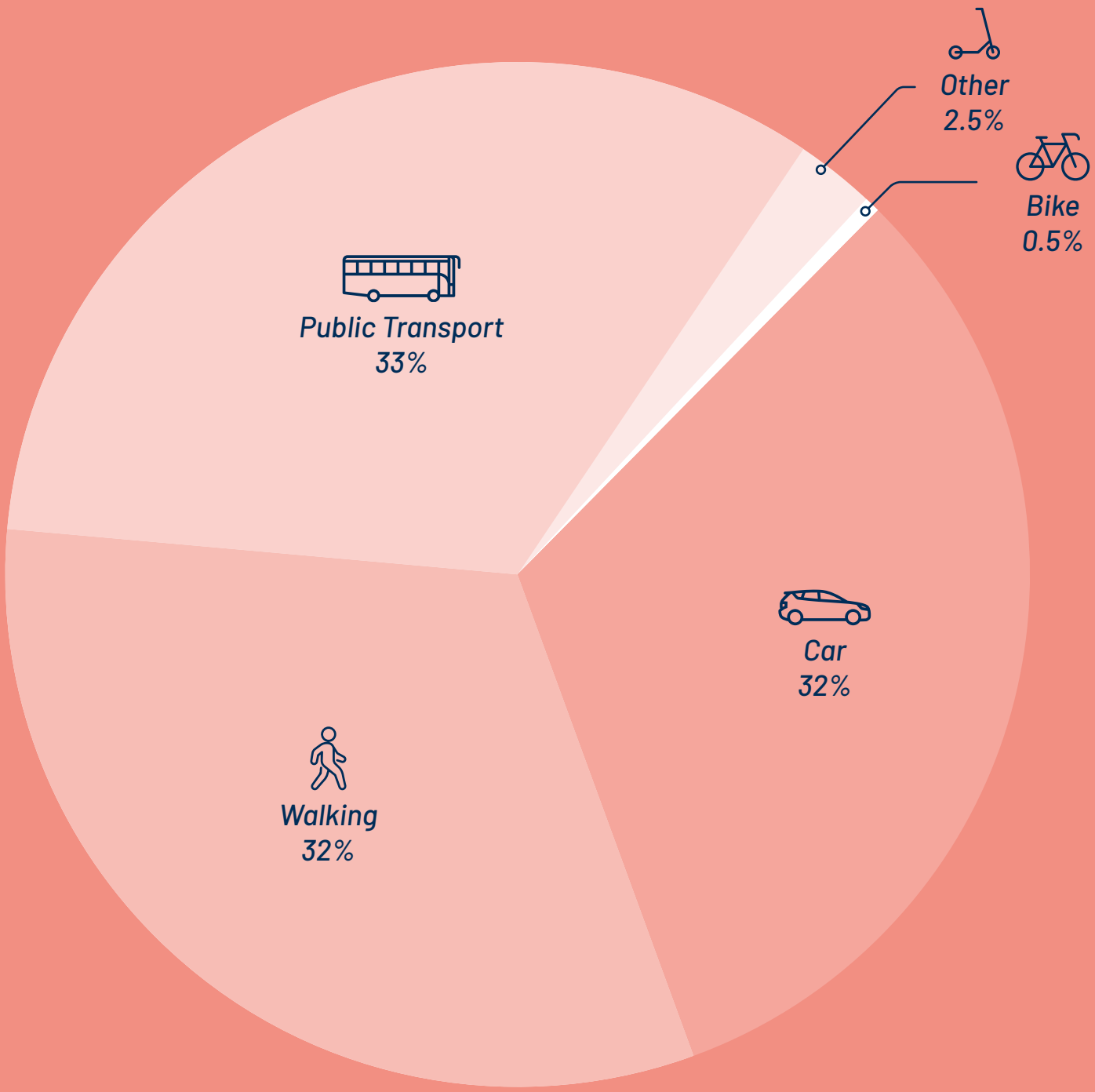
Congestion Index

18

Population

3,223,334

Modal Split (2018)



Madrid had been extending and promoting its public transport system before the pandemic hit. During the pandemic and ensuing lockdowns, Madrid continued promoting public transport use by introducing strict safety protocols. When lockdowns were lifted, the city introduced fare-free days on strategic dates like the first day of school to encourage people to use public transport. Madrid's public transport operator furthermore seized the pandemic as an occasion to advance the digitalisation of its services, such as the payment system or an occupancy detection.

Madrid also implemented some measures in favour of cyclists, such as mixed bus-cycle lanes and speed-reduced mixed lanes on multi-lane avenues. However, due to the size of the city and the resulting long distances, the focus was on public transport.

Covid-19: A challenge and opportunity for urban mobility planning

Opportunity:
Providing a glimpse into the green future

During Covid-19, cycling and walking experienced a boom. The fact that much fewer cars were driving around let urban residents experience what they could win if cars were less present in their city. Clean air, safe neighbourhoods for children playing, and hearing the birds in the morning – residents discovered an entirely different city during the lockdowns.

Opportunity:
Showing that home office works

Covid-19 led to the normalisation of home office in many domains. Employers who had been sceptical about home office had no choice but to allow it and discovered that employees' productivity did not suffer from it. Employees discovered how much time they could save and the stress they could avoid by commuting outside of peak hours. Even after the lockdowns, home office is still a regular part of many people's workweeks. Public transport operators noticed that peak hours had extended and that on Fridays, work-related mobility had dropped. The extension of peak hours makes it easier for public transport operators to manage infrastructure capacities.

Opportunity:
Installing pop-up infrastructure for cycling and walking

Many urban authorities used the disruption caused by the pandemic to push forward plans for cycling and walking infrastructure and for traffic-reduced neighbourhoods. Most cities implemented those plans in the form of transitory infrastructure like pop-up cycle lanes.

Challenge:
Making pop-up infrastructure last

Not all the pop-up interventions were ultimately transformed into built infrastructure. Furthermore, this type of infrastructure is not always well-suited for inexperienced or vulnerable cyclists. In addition, some of the pop-up interventions have proven vulnerable to political backlash and, in some cases, had to be removed again.

Challenge:
Getting people back on public transport

Public transport was hit badly by Covid-19. Passenger numbers plummeted, and service levels could be maintained only because public authorities stepped in and covered the losses of providers. However, in many cities, passenger numbers were slow to recover and had not yet reached pre-pandemic levels when authorities stopped their financial support for providers. This resulted in tight financial situations for public transport providers. The exception were cities in which passenger numbers had been rapidly increasing before Covid-19 hit, because the cities had been in the process of expanding and consolidating their public transport network and harmonising ticket prices across the metropolitan

area. Though in those cases, passenger numbers also dropped during the lockdowns, they were much quicker to recover to their pre-pandemic levels and resume the pre-pandemic growth.

Challenge: Avoiding the return of the car

Once the lockdowns were lifted, many people were still sceptical about public transport and instead started driving due to sanitation concerns. The increase in driving lasted far beyond the immediate context of the pandemic. In addition, it soon became obvious that a significant share of the increase in cycling and walking during the pandemic had been limited to leisure time mobility. It did not lead to significant shifts in work-related mobility once lockdowns were lifted.

Lessons from Covid-19...

...for making mobility governance resilient

1. Factoring in disruptions when planning future revenue streams and budgets
2. Maintaining a high capacity to adapt
3. Embedding intentions and interventions for green infrastructure in binding agreements and plans
4. Developing policies to reduce car ownership

...for transformative mobility policies

1. Creating emergency funds and loosening caps on spending
2. Restricting carbon-intensive behaviours and business activities
3. Using disruptions to set new directions for the future

Lessons from Covid-19 for making mobility governance resilient

Factoring in disruptions when planning future revenue streams and budgets

The Covid-19 pandemic highlighted that mobility planners and providers must be prepared for different kinds of events that may interfere with their plans and operations, such as economic downturns or drastic changes in the cost of energy. During Covid-19, it was essential that public authorities covered the losses of public transport operators and allowed them to maintain service levels.

Maintaining a high capacity to adapt

Public transport operators' capacity to adjust routes and frequencies to changed user preferences was a huge asset during and after the pandemic.

Embedding intentions and interventions for green infrastructure in binding agreements and plans

The experience of the Covid-19 pandemic showed that infrastructure and means of transport that are backed by a strong commitment tend to be less affected by disruptions and may even benefit from them. For instance, ridership numbers recovered quickly in cities that had been expanding and promoting public transport and that didn't falter from this commitment during the pandemic. Similarly, the existence of binding and ambitious plans for expanding the cycling network favoured a fast transition from pop-up to permanent

cycling infrastructure, whereas pop-up cycle lanes that were not part of consolidated plans for the extension of cycling infrastructure were at a higher risk of being removed again or left in their transitory state.

Developing policies to reduce car ownership

Covid-19 showed that major disruptions of people's mobility routines tend to lead to a return of the car. People who owned cars but did not use them during the workweek started driving more, and some carless households bought cars. Therefore, reducing the modal share of driving is not enough: There need to be specific objectives and policies to reduce car ownership.

Lessons from Covid-19 for transformative mobility policies

The experience of Covid-19 showed that we can collectively respond to emergencies. The public response to the crisis was fast and well-coordinated. The measures taken to contain the pandemic were drastic but met with financial support for those in need.

Like the Covid-19 pandemic, the climate emergency threatens society as a whole, though not all people are equally affected by it. Depending on where one lives in a city, there are huge differences in how vulnerable one is to heat waves or flooding. Considering this and residents' wishes for a green urban mobility future, we wanted to know:

What can we learn from the collective response to Covid-19 for climate action?

Creating emergency funds and loosening caps on spending

Several cities have already declared the climate emergency. However, contrary to Covid-19, which was also declared an emergency, this has not resulted in emergency budgets. Such emergency funds would allow public authorities to accelerate the implementation of plans in favour of sustainable mobilities, which is often delayed.

In addition, such dedicated emergency funds would reduce financial trade-offs between measures in favour of green mobilities and other urban policy priorities, such as schooling.

Restricting carbon-intensive behaviours and business activities

Covid-19 showed that some emergencies require drastic interventions in society, the economy, and people's everyday lives. Also, it proved that such restrictions are not only possible, but that they can even foster the emergence of alternatives, such as people's renewed interest in their neighbourhoods. In addition, the pandemic was an opportunity to learn how such drastic restrictions should be accompanied and communicated. These insights should be used to design policies for a fast, far-reaching transition to proximity-based, low-carbon mobilities.

Using disruptions to set new directions for the future

With the climate catastrophe unfolding, disruptive events such as floodings, heat waves or storms are becoming more frequent. The experience of Covid-19 showed that disruptive events and crises can become opportunities for policy change in favour of low-carbon cities and urban mobilities. Our survey of Munich's population showed that people want a different, more sustainable future for urban mobility. Thus, policymakers should use every opportunity to push forward the necessary - and wanted - transformation!

Text

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CLUSTERS 4 FUTURE
Innovationsnetzwerke für unsere Zukunft

The findings and lessons presented here were elaborated in the context of the research project Transformative mobility experiments (TrEx). These results are published in collaboration with the MCube integration project „Responsible Mobility Innovation & Governance (ReMGo)".

MCube - the Munich Cluster for the Future of Mobility in Metropolitan Regions - utilises the unique agglomeration of players in the field of mobility innovation to make Munich a pioneer for sustainable and transformative mobility innovations. The aim of the cluster is to test and research leap innovations in the mobility sector and to develop scalable solutions with a model character for Germany and worldwide.