EGUM
approach (WG 6)

Structure of D6.1

EGUM Expert Group on Urban Mobility

WG 6. Future of urban mobility and inclusive and sustainable urban space

Del 6.1 (*draft version in progress v.1.3*)

Recommendations how urban space management can contribute to sustainable urban mobility and the European Green Deal

Editors:

Michael Glotz-Richter, Free Hanseatic City of Bremen

Vladimir Vorotovic, ERTICO

3.1	Keeping the given rules
3.2	Integration of sustainable neighbourhood mobility plans with SUMPs and UVAR
3.3	Traffic calming, shared space
3.4	(Re-) allocate sufficient space for walking (incl special needs of people with handicaps)
3.5	Visibility and other safety aspects
3.6	Safe bike parking
3.7	Green and blue plans for street space
3.8	Parklets, cafés and other elements for better social interaction
3.9	Better integration of public transport (accessibility of stops, bus caps, quality of waiting area)
3.10	Reduce demand for car parking through car sharing
3.11	Reduce demand for on-street car parking through parking garages
3.12	Dedicated delivery zones / innovative urban logistics approaches
3.13	E-charging hubs
3.14	Dedicated parking zones for shared bikes, cargo-bikes, e-scooters etc.
3.15	Incentives for smaller cars through parking fees according size of vehicles
3.16	Curbside management, demand-related fees for parking
3.17	On the way to automated transport: IPA – Intelligent Parking Assistant
3.18	…

Modules of section 3: ‚in process'

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module example 3.15 (incentives smaller cars)

3.15 incentives for smaller cars through parking fees according size of vehicles

Some key points

- in EU, the increase of car length in the last 20 years means end-to-end about 50,000 kilometres space consumption (just by increase of car length)
- currently there are no incentives for smaller cars in urban space
- parking fees according to the size of vehicles are a potential market based instrument (as usual e.g. in the housing market) to achieve a more efficient use of street space
- digital tools allow a fee calculation and invoicing according size of vehicles

Over the last decades cars became longer and wider – consuming more and more space. Whereas beginning of the 60s, cars on the German market had in average less the 4 meter in length and 1.60m in width, in 2019 they needed in average already about 4.60m by 1.90m[1]. The size of cars produced in Europe increased between 2000 and 2022 from 4.16 m to 4.36 Meter in length and from 1.71 m to 1.81 m in width[2].

example Volkswagen Golf
50 cm longer
Almost 20 cm wider

Golf 1: 3705 x 1610 x 1390 mm
Golf 7: 4255 x 1799 x 1452 mm

Graph: Süddeutsche Zeitung

For the current amount of about 250 million cars in the EU[3], the growth in length over the last 20 years means an additional space consumption end-to-end of 50,000 kilometres – just by the increased size of cars. In a parking lane of 50 m length, in the year 2000 you could park10 cars and may find rather eight or nine cars now.

How can municipalities give incentives for smaller cars?

On the national level, you have fiscal instrument to influence consumers' priorities when purchasing a car. In many countries, we find some emission-related taxation on the national level.

Draft version (in progress)

[1] https://www.rnd.de/wirtschaft/datenanalyse-autos-werden-nicht-erst-seit-dem-suv-boom-grosser-6GTM66RRNJEC7EYHR3FQS7Y24Y.html
[2] https://www.firmenauto.de/laengenwachstum-bei-pkw-laenger-breiter-hoeher-11223592.html#:~:text=Zwischen%202000%20und%202022%20ist,von%20einem%20Zentimeter%20pro%20Jahr
[3] figure include all types of passenger cars and does not account for other types of vehicles such as commercial vehicles or buses

The size of cars rarely matters. Today, there are almost no incentives set by local authorities for smaller cars (except the fact that it might be easier to find a free but rather short parking spot).

Providing more but smaller parking spaces for more but smaller cars (graph: Glotz-Richter)

Operators of parking garages started to provide decks with different sizes of parking spots – and related different fee levels. As you can put on such a parking deck fewer cars, there are higher fees – to generate the same revenue per m².

We rarely find such approach on public streets – although it would be a fair way to incentivise smaller cars. It would be a normal market economy approach to pay more for higher consumption – thus giving some incentive to reduce consumption. As street space is a limited resource, lower parking fees for smaller cars would be just a normal approach within a market-based economy.

For the (near) future, digital tools will allow to move on from the current static payment per vehicle –independent from space consumption- to some flexible fee levels that considers the specific space-consumption of each car. As well you may take dynamically the demand at certain times and areas into account – some flexible kerbside management.

A car like the VW Polo needs about 4.05 m in a parking lane and requires in total 7.1 m² street space[4]. In comparison, a BMW 7 series needs 5.39 m in a parking lane and requires in total 10.5 m² street space[5]. It would be just fair to charge a parking fee lower for a car of 4.05 meters than for a car of almost 5.40m.

Such fee generation can be automated in vehicles-to-infrastructure communications or with a digital twin when paying by app.

[4] 4,05m x 1,75 m
[5] 5,39 x 1,95 m (mirros folded)

Task: Incentives for smaller cars
through parking fees according size of vehicles (requiring digital twins and legislation/regulation)

Photo: Moritz Richter

STOP

CIB

NY

PUBLIC

SCHO

FW2 30K

PARKING

SMALL CAR

PARKING

SMALL CAR

MALL CAR

PARKING

SMALL CAR

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module example 3.10 (car sharing)

3.10 reduce demand for car parking through car sharing

Some key points

- Car sharing – in conjunction with a high level of other mobility options- reduces dependence on a privately owned car
- Reliability of car sharing services is a key aspect for households not owning a car
- Municipal support for car sharing pays off quickly when properly done
  Example: City of Bremen (Germany 570,000 inhabitants). Without car sharing, there would be about 8,000 more cars on Bremen's streets. If you wanted to achieve the same impact by parking garages, it would require an investment of 150 – 200 million €

Car sharing developed over the last 40 years to a modern mobility service that gives access to a car when you need it. Where you have good infrastructure, public transport and good conditions for walking and cycling, you can do most of your daily trips by sustainable modes. Whenever you are in need for a car, car sharing gives you access without the costs and requirements of car ownership.

The experience of integrating car sharing into sustainable urban mobility plans shows that car sharing can reduce car ownership. A good, customer oriented service of car sharing operators will find synergy with supporting measures of municipalities, e.g. by providing street space for car sharing stations in the urban neighbourhoods. Car sharing is not a stand-alone measure but needs to be integrated into urban development and with other mobility options to allow a multi-modal but as far as possible car independent lifestyle.

Surveys in Bremen's urban neighbourhood show that 26% of the parked cars were not moved within three consecutive workdays.

"Use it – don't own it" is a principle known from various areas. A shopping trolley in the supermarket is used, but not privately owned. For luck, as otherwise it would cause quite some problems to store it in our apartments. Similar, car sharing can provide a vehicle just when you need it without the hassle of owning it.

Car sharing is an element of convenience for users. It is a concept of mobility that builds on multimodality of sustainable supplemented by a car. Here, the car is a stopgap – rather than in the centre of mobility patterns.
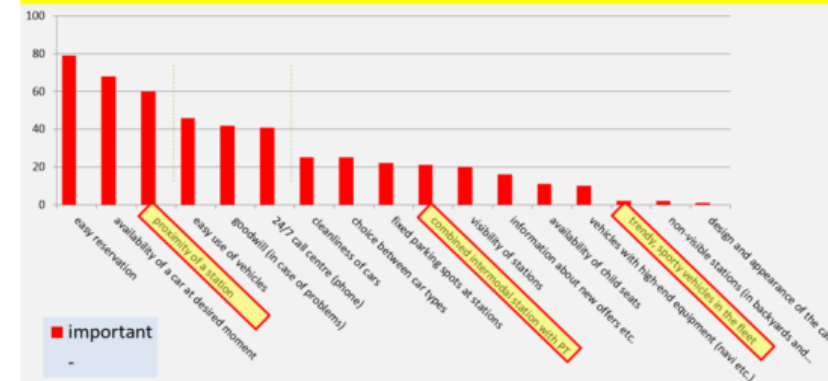
Example of Bremen: In the German harbour city of about 570,000 inhabitants, you will find today about 30,000 users of car sharing. 80 % have no privately owned car in their household. About a third of them changed from car ownership to car sharing – liberating street space. Another and growing group are young people that never owned a car and use car sharing instead of car ownership. In total, every car sharing car in Bremen replaces 16 private cars. Without car sharing, Bremen would have 8,000 more cars on the streets – end-to-end about 40 kilometres of street space just in one city.

What are the most important aspects to make car sharing attractive to replace car ownership?

From the viewpoint of customers, the three major aspects are[1]:
- Easy handling
- Reliability (that a car is there when you need it)
- Vicinity of the next car sharing station

Importance of aspects of car sharing for satisfaction level

Data: Analysis of the impacts of car sharing in Bremen, Germany; Final Report by team red (2018); graph: Glotz-Richter

Whereas the first two aspects are in the hand of the car sharing operator, the aspect of having stations in the urban neighbourhood is often in the responsibility of the local authorities.

Draft version (in progress)

[1] Survey: Analysis of the impacts of car-sharing in Bremen, Germany; Final Report by team red (2018) – download: https://northsearegion.eu/media/5724/analysis-of-the-impact-of-car-sharing-in-bremen-

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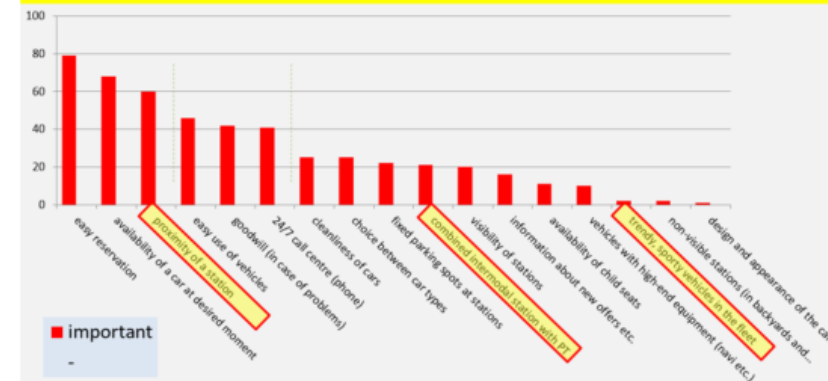
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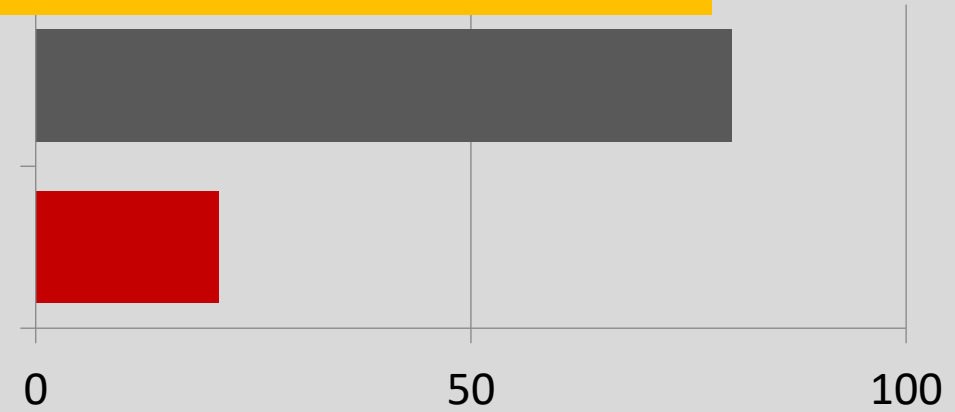
Bremen (570,000 inhabitants): ~ 30,000 car sharing users: 8,000+ cars less similar relief by parking garages would have required investment of

150 - 200 million €

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module example 3.10 (car sharing)

...80% of the car sharing users don't have a car in their household...

Kontrollgruppe

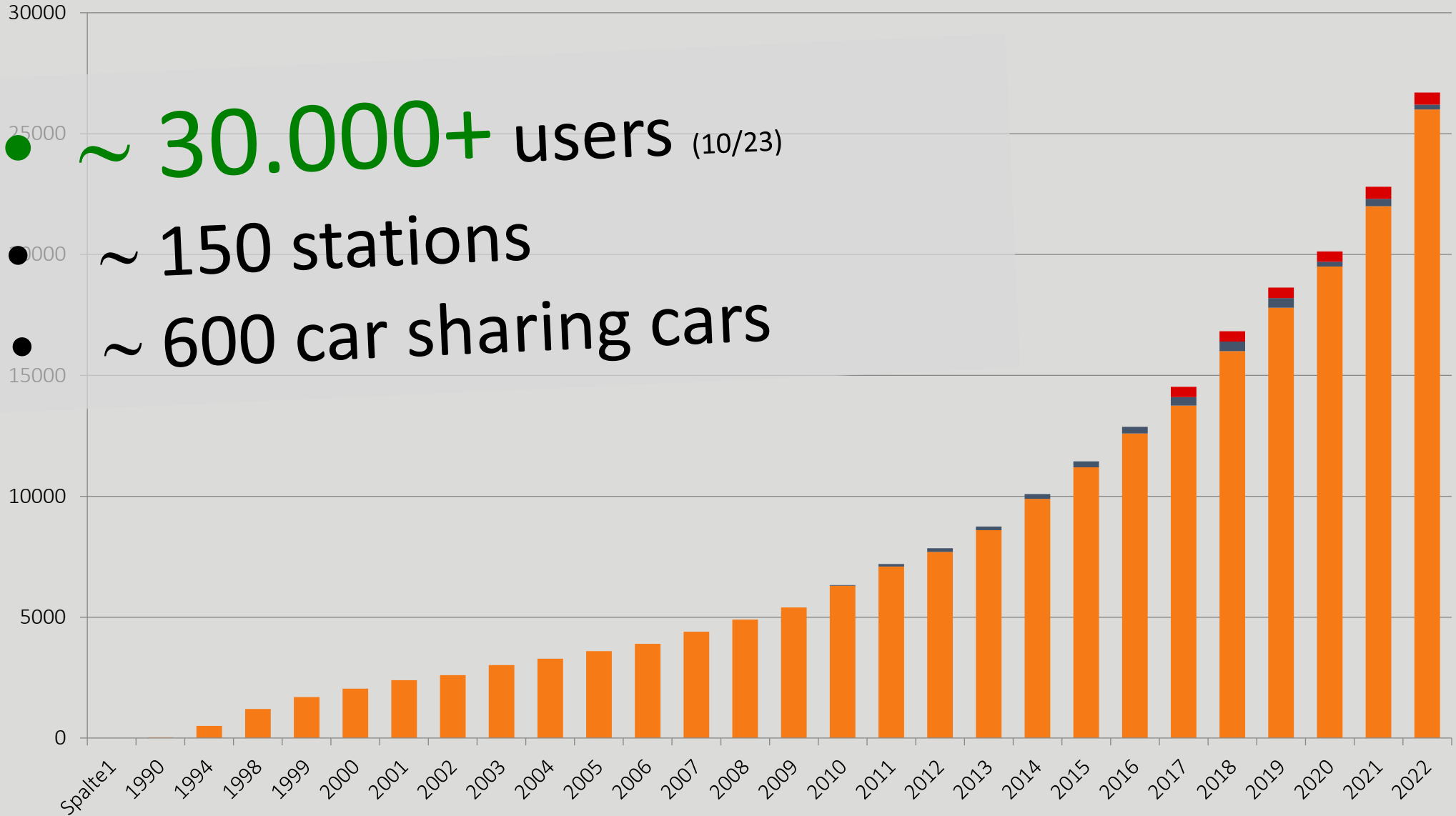Carsharing-Nutzer

0   50   100

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150 - 200 million €

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module example 3.10 (car sharing)

● ~ 30.000+ users (10/23)

● ~ 150 stations

● ~ 600 car sharing cars

## 3.17 On the way to automated transport: IPA – Intelligent Parking Assistant

Some key points

- Illegal parking is a big problem in many European Cities
- Automated cars will have to follow the rules of the Highway Code
- Automated transport works better when all players in the street space play according the same rules
- When cars insist on parking according the rules – it is better than any enforcement
- Like ISA for speed, IPA could could support drivers in finding some legal parking spot and avoid disturbance of other road users

Guidance and assistance systems are becoming more and more common in cars – steps to further automation. Automated cars will be programmed to respect the traffic rules – which necessarily will include parking.

Whereas today parking against the rules with negative impacts on other road users is quite common in many European cities, the technological tools of automation may help to avoid such obstructive way of car parking.

As sensor technology became a standard element of new cars, there is only a little step from Intelligent Speed Assistance (ISA) to Intelligent Parking Assistance (IPA).To achieve a fair share of using street space in real life application, such Intelligent Parking Assistant (IPA) could widely avoid illegal and obstructive parking.
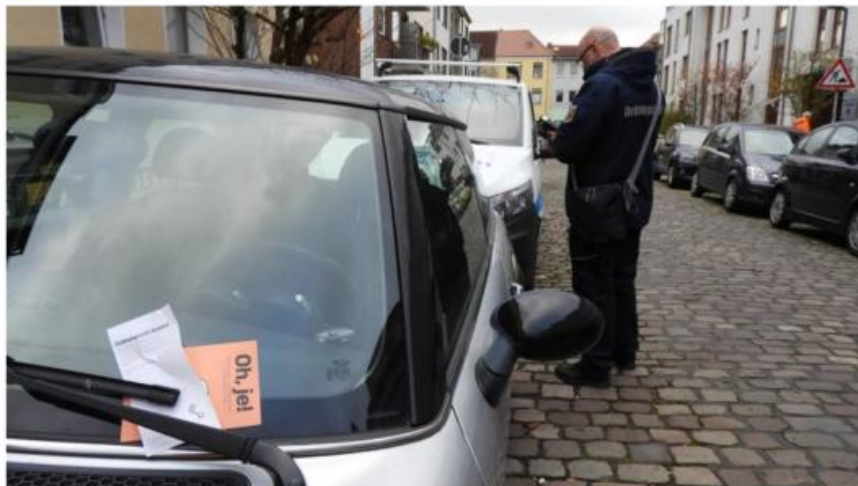
Graph: Glotz-Richter

Cities can call for state-of-the-art technology to keep the rules

Parking according rules

Parking areas
updates received

0

No parking in this location

**Task: IPA – Intelligent Parking Assistant;
no parking where its not allowed   (…on the way to automation)**

Structure of D6.1

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Thanks for your attention

photo: Stefan Oelgemöller

alice | Alliance for Logistics Innovation through Collaboration in Europe

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Freie Hansestadt Bremen

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