



Smart Cities

*The University
Campus as Part of
an Urban
Sustainable
Transport Vision*



Quelle: unsplash.de

The future of mobility will not be determined by technology

Just as in the past: We will get the future that we decide to build.



https://disruptionhub.com/mobility_service/

Understanding the inertia of the established „socio-technical system“

We have built an environment encouraging the excessive consumption of space and resources.



Is a different future even possible?

Current trend: More cars...

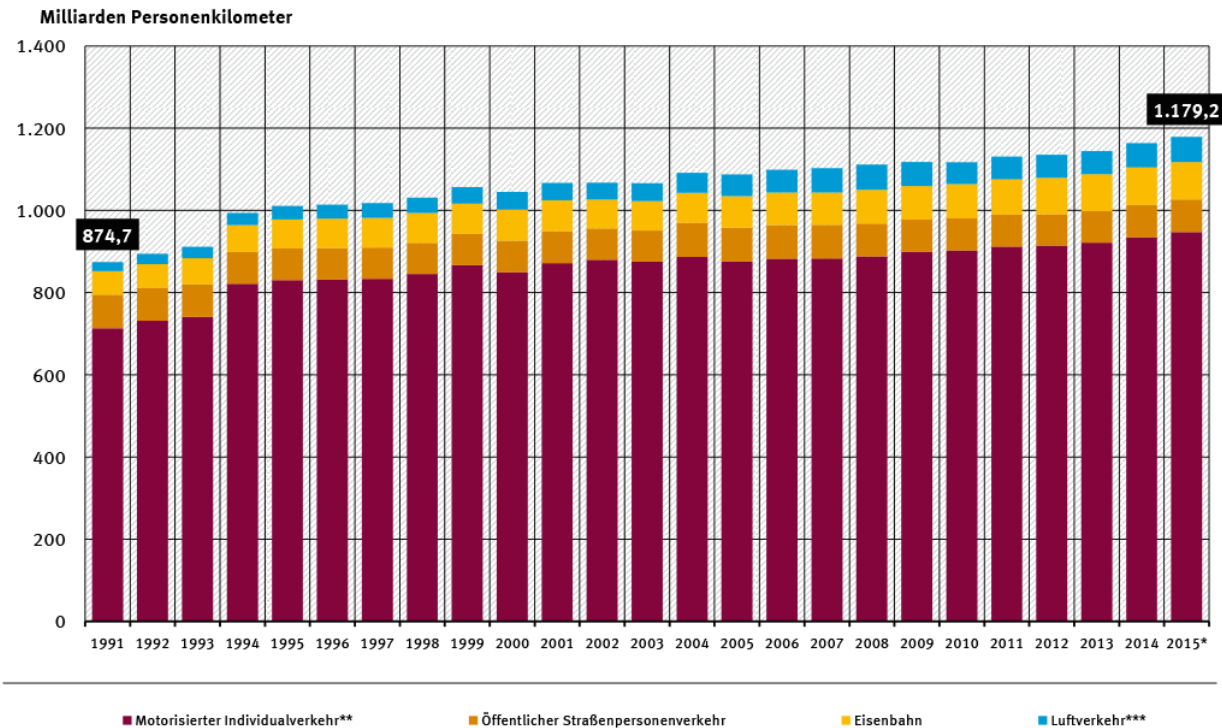
Anzahl der gemeldeten Pkw in Deutschland in den Jahren 2010 bis 2018 (in 1.000)



Is a different future even possible?

Emissions on the rise, technological efficiency gains are being offset by rising demand and consumption.

Anteile der Verkehrsträger am motorisierten Personenverkehrsaufwand



* zum Teil vorläufige Werte

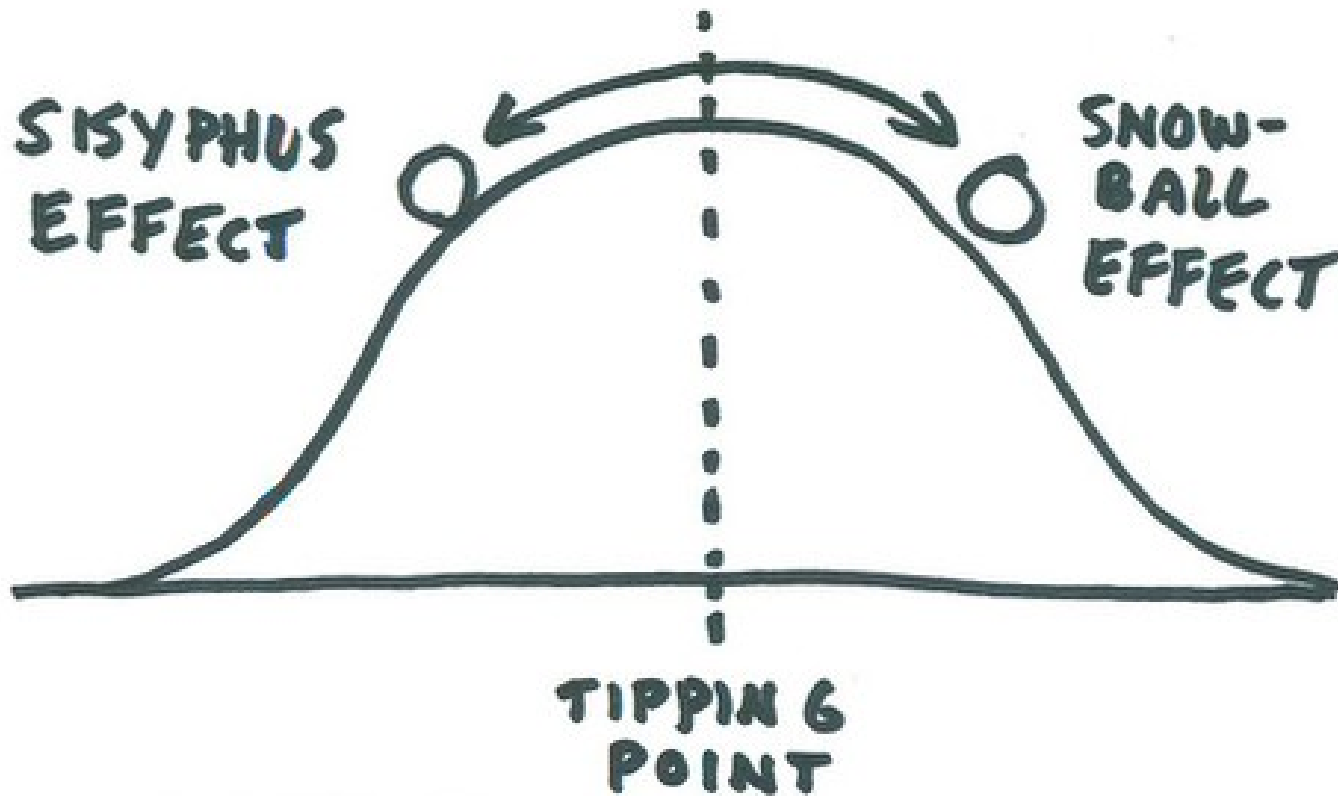
** Motor. Individualverkehr: ab 1994 veränderte Methodik, die zu einem höheren Verkehrsaufwand führt

*** Luftverkehr: ab 2010 geänderte Erfassungsmethode

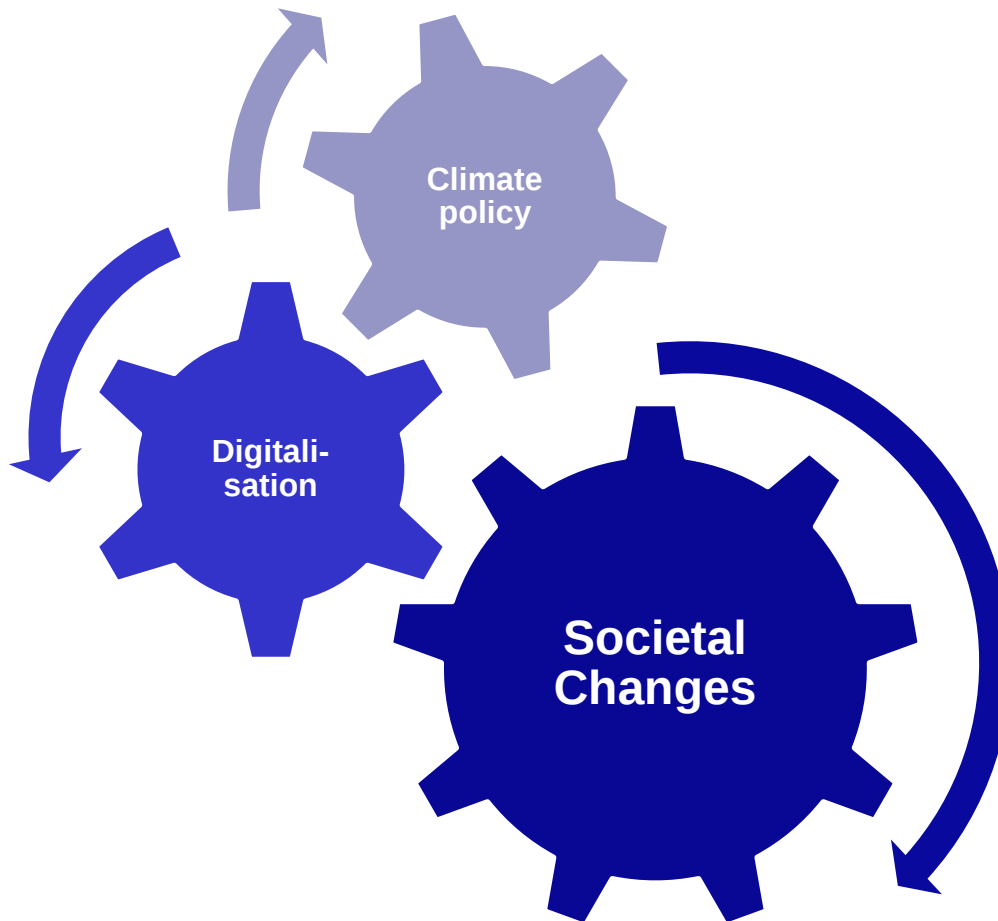
Quelle: Bundesministerium für Verkehr und digitale Infrastruktur (Hrsg.): Verkehr in Zahlen 2016/2017

On the other hand: Strong drivers for change

Trends are converging, making a transformation more probable.

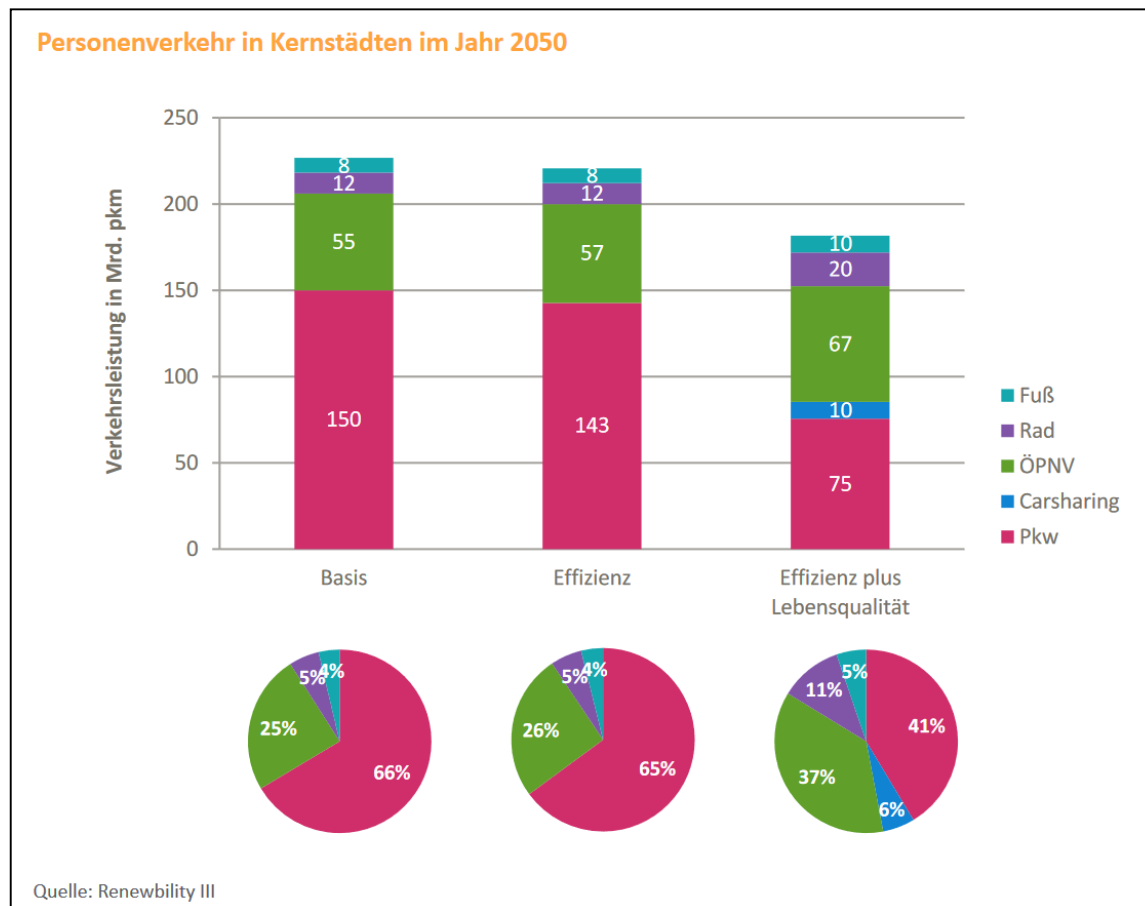


Three drivers for change in the mobility sector



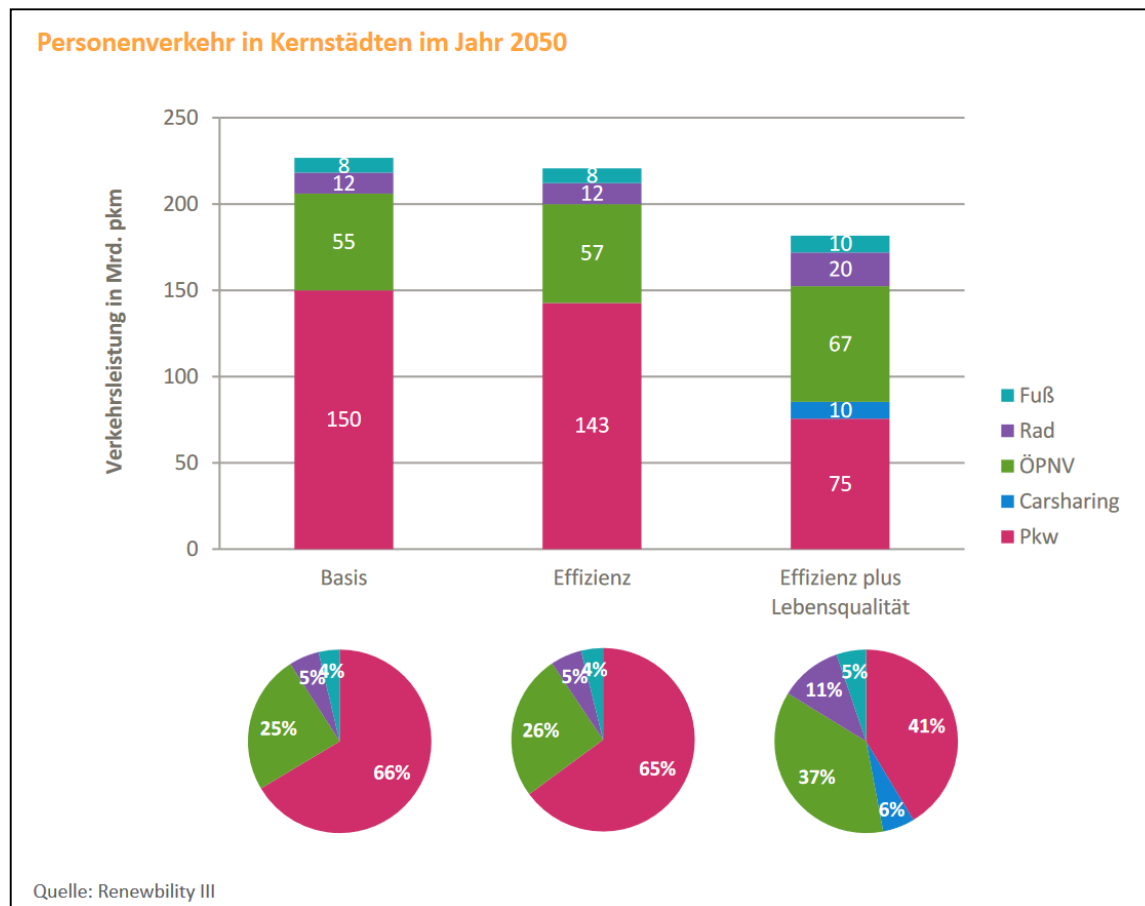
Climate policy goals as drivers of change.

Aiming at 40 percent reduction of transport related CO₂-emissions by 2030 (from 1990 level).

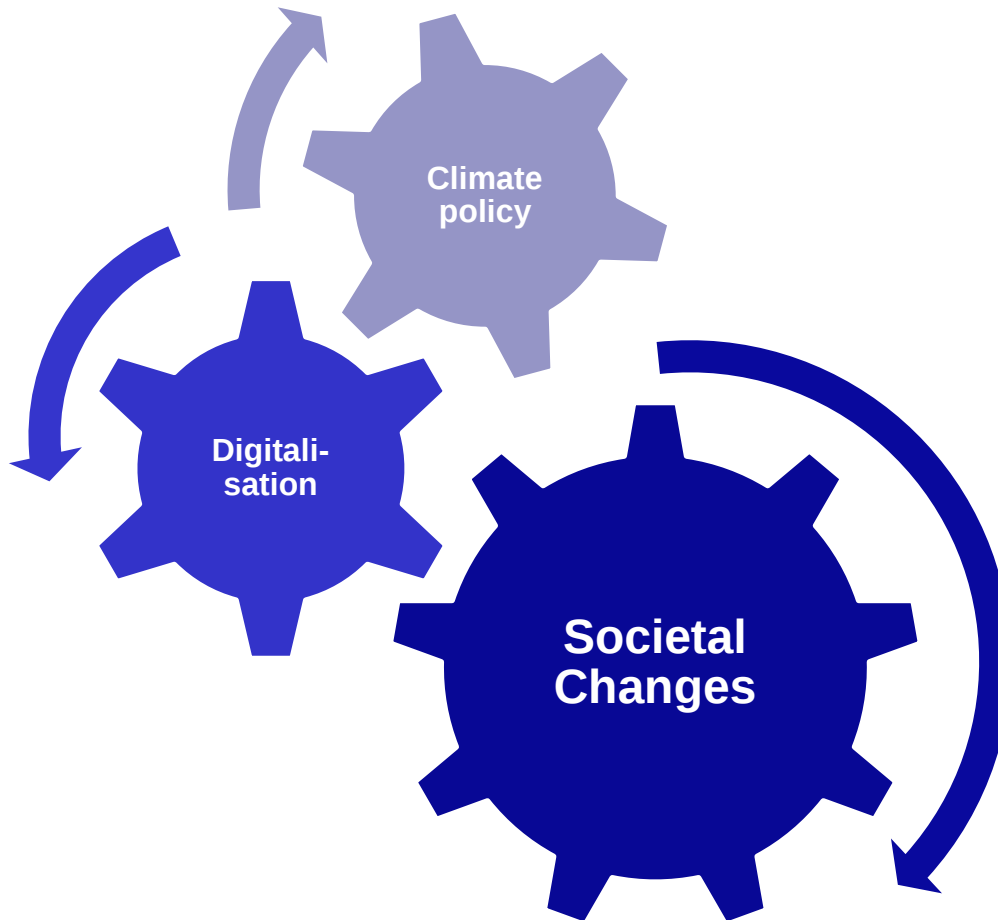


Climate policy goals as drivers of change.

Same level of mobility – fewer emissions: Shifting and reducing travel demand, increasing efficiency.



Three drivers for change in the mobility sector

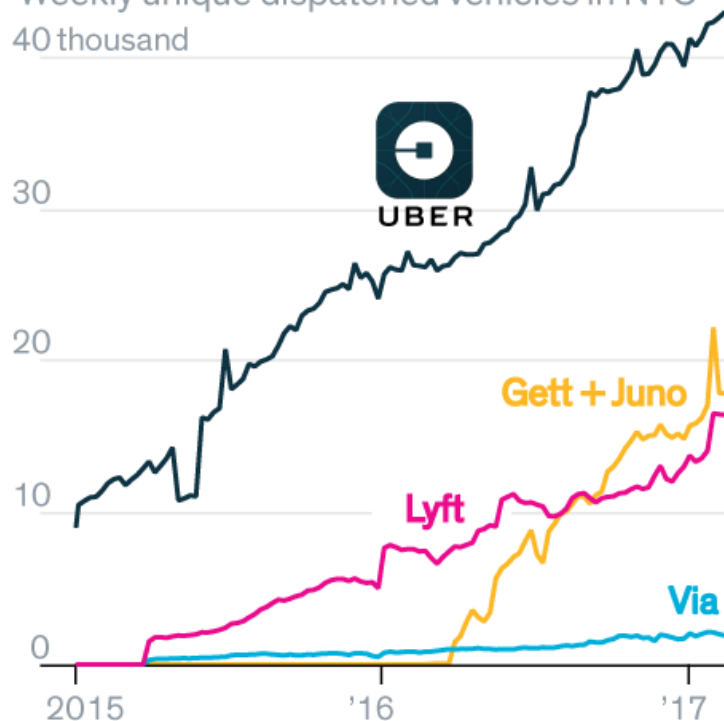


Battle over platform dominance

Who will become the „Amazon“ of mobility?

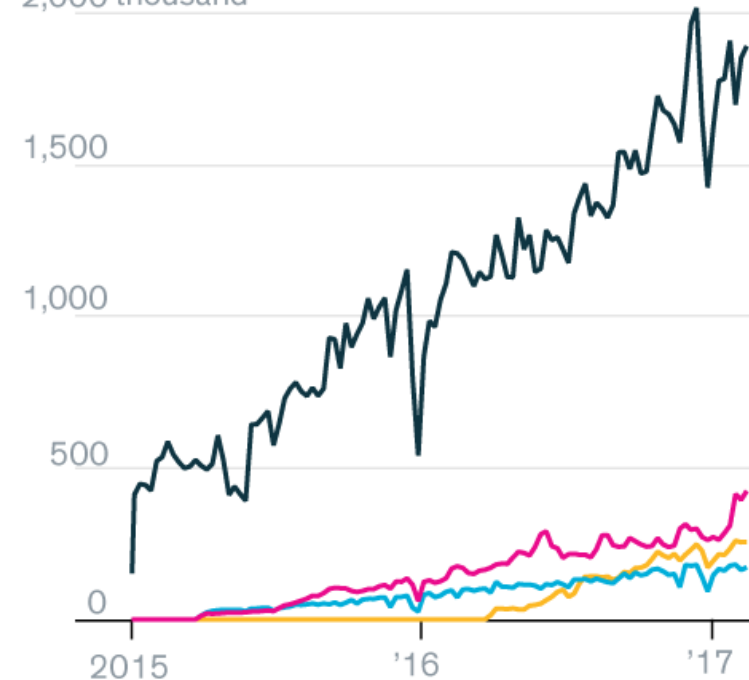
Uber is still dominating the market with more cars than all other competitors combined.

Weekly unique dispatched vehicles in NYC
40 thousand



Source: NYC Taxi and Limousine Commission

Weekly total dispatched trips in NYC
2,000 thousand



Barron's Next

New transportation services

Car manufacturers are testing pathways to become mobility providers.

Elektro-Shuttleservice

Hamburg genehmigt VW-Fahrdienst Moia

Volkswagen macht Bus und Bahn Konkurrenz. In Hamburg genehmigte der Senat den VW-Shuttleservice Moia. Noch vor Start des Projekts gibt es bereits Proteste.



Contours of a „seamless“ mobility system

Digitalisation enables new business models and brings new players into the market.



Clever-shuttle

Multioptional mobility culture becomes reality

About 15.000 shared mobility vehicles in Berlin.

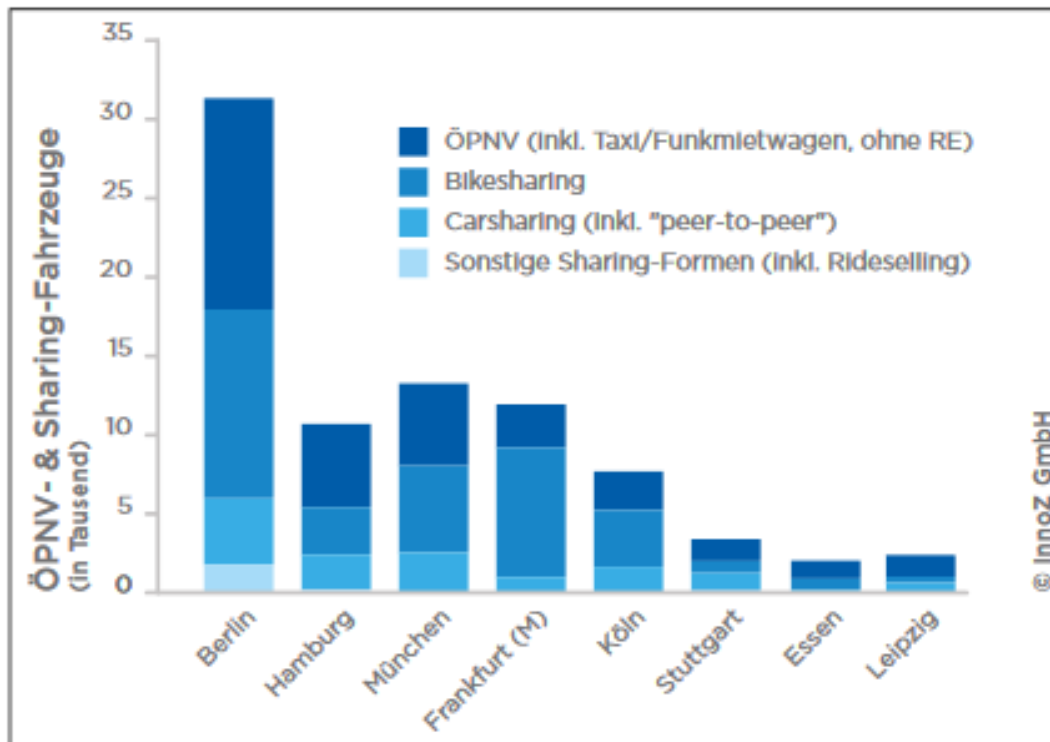
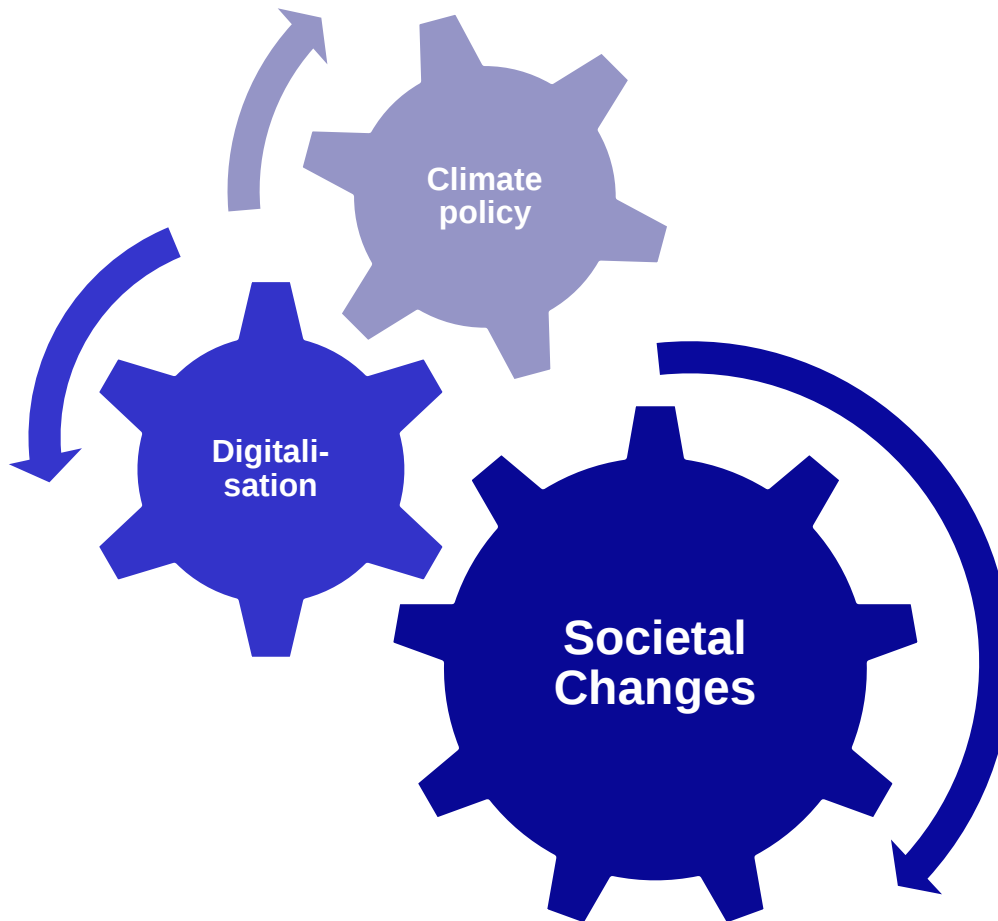


Bild 3: Zahl der ÖPNV- und Sharing-Fahrzeuge, Stand 2017/18

Recherche: Scherf; Grafik: Ruhrort/Niemeyer; Quelle: s. unten

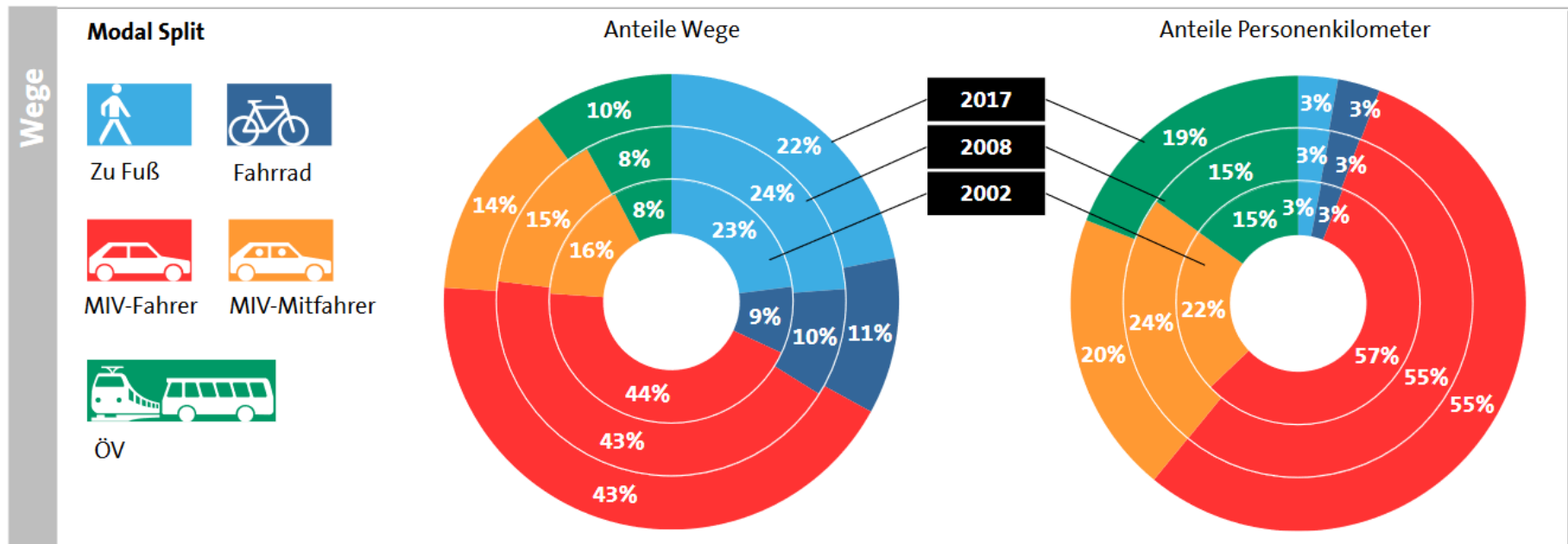


Three drivers for change in the mobility sector



Societal change drives new demand patterns

Modal split of car traffic has declined (slightly).

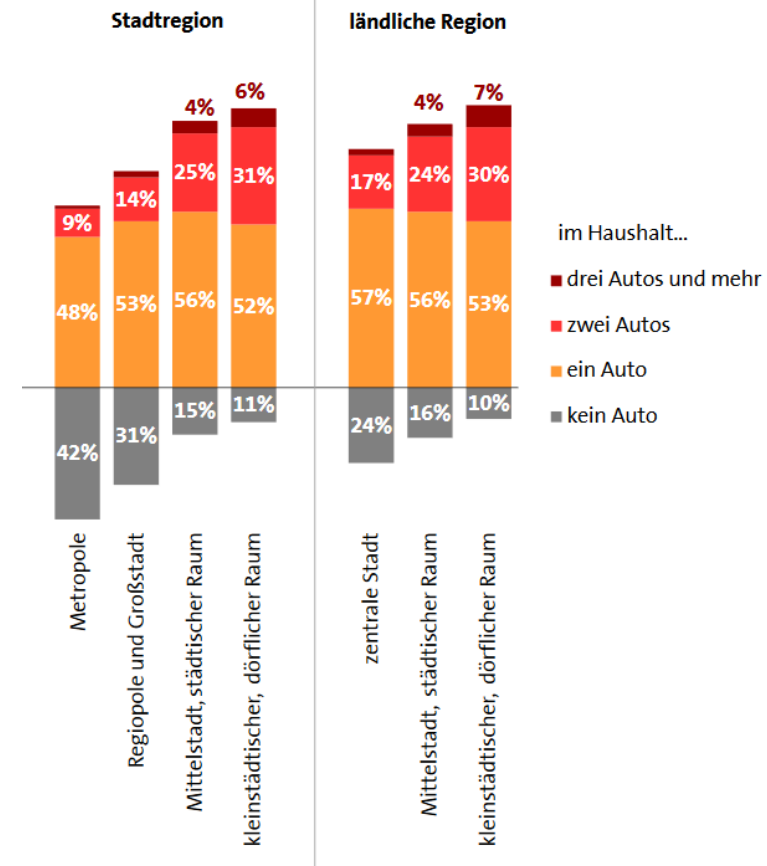
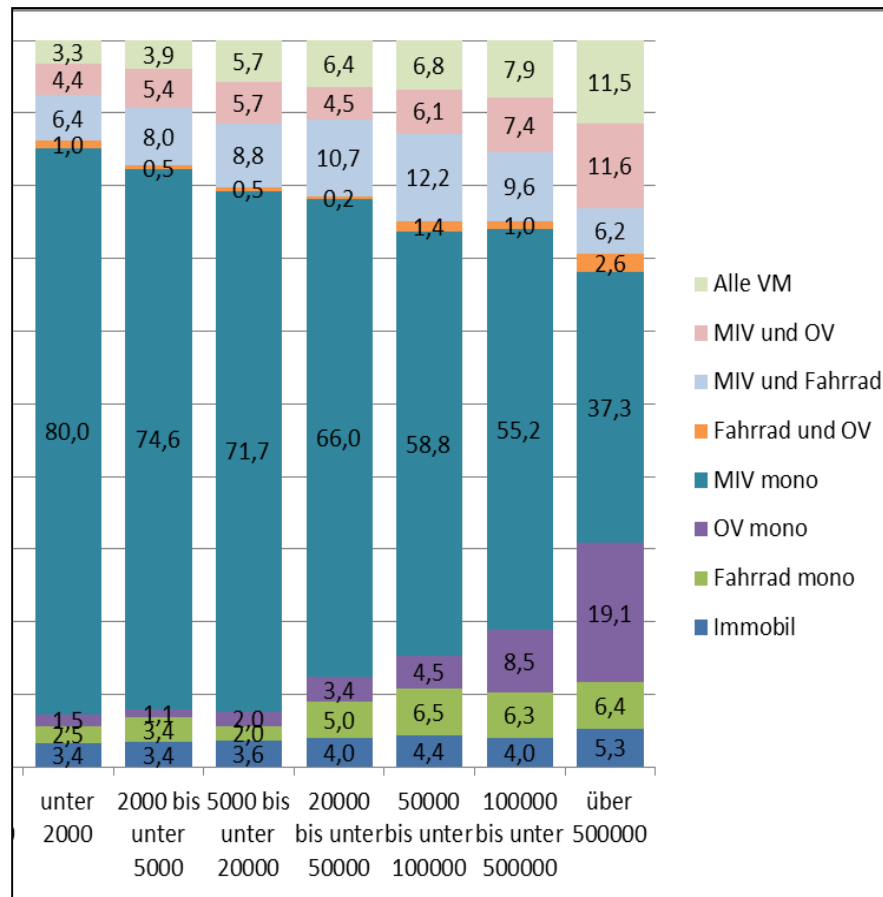


Quelle: infas/DLR 2018

Quelle: infas/DLR 2018: „Mobilität in Deutschland. Kurzbericht.“

„Multioptional mobility culture“

In large cities the majority is already „multioptional“.



„Multioptional mobility culture“

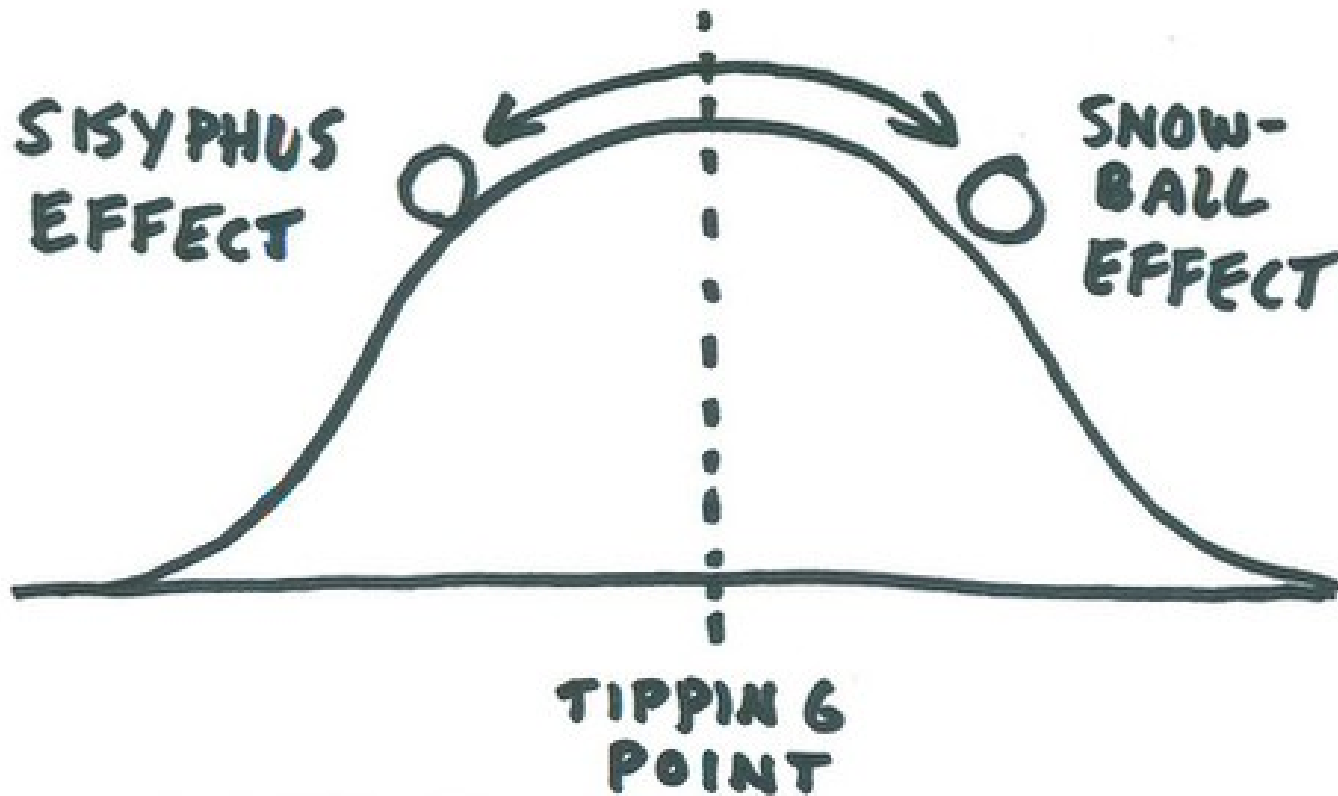
Younger people are becoming more multi-modal.



Quelle: <http://www.kaeferblog.com/wp-content/uploads/2010/05/vw-kafer-werbung-alles-in-einem-volkswagen.jpg>

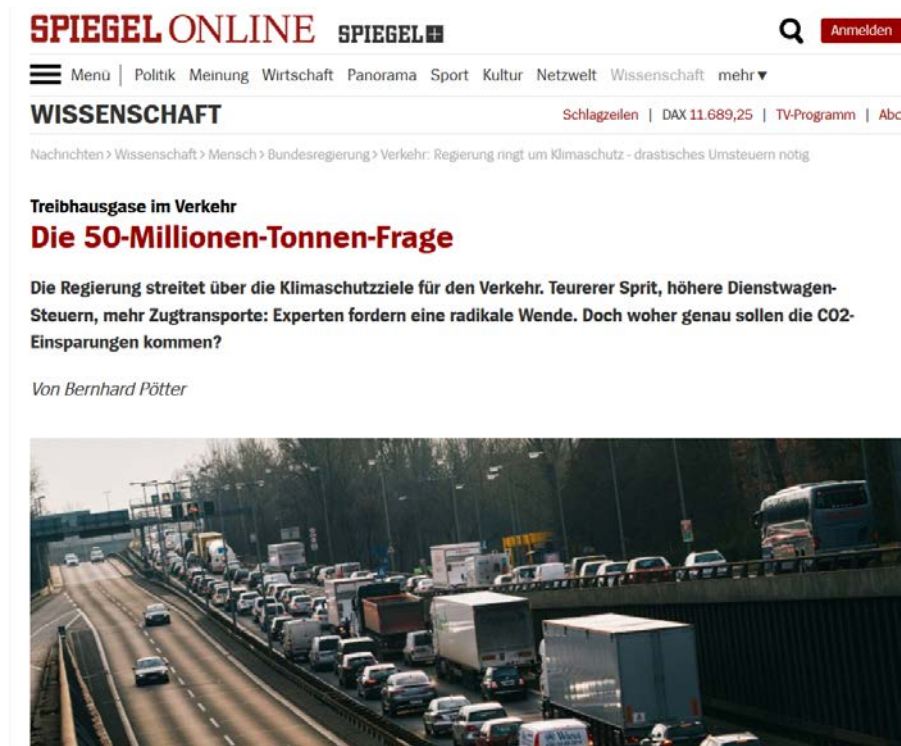
There are strong drivers towards a different mobility future.

Not without cars, but with more mobility options.



But: Neither technology nor behaviour alone will make change happen

A transformation can only come if the „rules of the game“ of mobility are also re-assessed.



Quelle Spiegel Online

Mobility needs to become a political (again).

Legal framework was designed to enable mass motorisation – making it difficult for alternatives.



Quelle: https://www.flickr.com/photos/sea_beach_express/37753764562

Example: Mandatory Parking Minimums

Strong legislation was used to make room for cars.



Verkauf Stellplatz in der Tiefgarage Berlin-Mitte

Oranienstr. | Kreuzberg (Kreuzberg) | 10969, Berlin

45.000,00 €

Kaufpreis

keine Angabe

Fläche

Example: Functional division of public space

Alternatives don't have enough space.



Cities can lead the way towards a multioptional mobility culture

Setting new priorities to encourage the use of the most efficient mobility options.



Contours of a multioptional mobility policies

Shared vehicles should get more space than private vehicles.



Contours of a multioptional mobility policies

The most efficient transportation modes need to be prioritised.

Nahverkehr in Stuttgart

X-1-Buslinie soll staufrei pendeln

Von Thomas Braun - 15. Februar 2018 - 17:54 Uhr

Im Herbst soll der Expressbus zwischen der City und Bad Cannstatt an den Start gehen. Damit die Passagiere staufrei vorankommen, fordern Grüne, SPD und SÖS/Linke-plus im Rathaus eine zusätzliche Busspur zwischen der König-Karls-Brücke und dem Wilhelmsplatz.

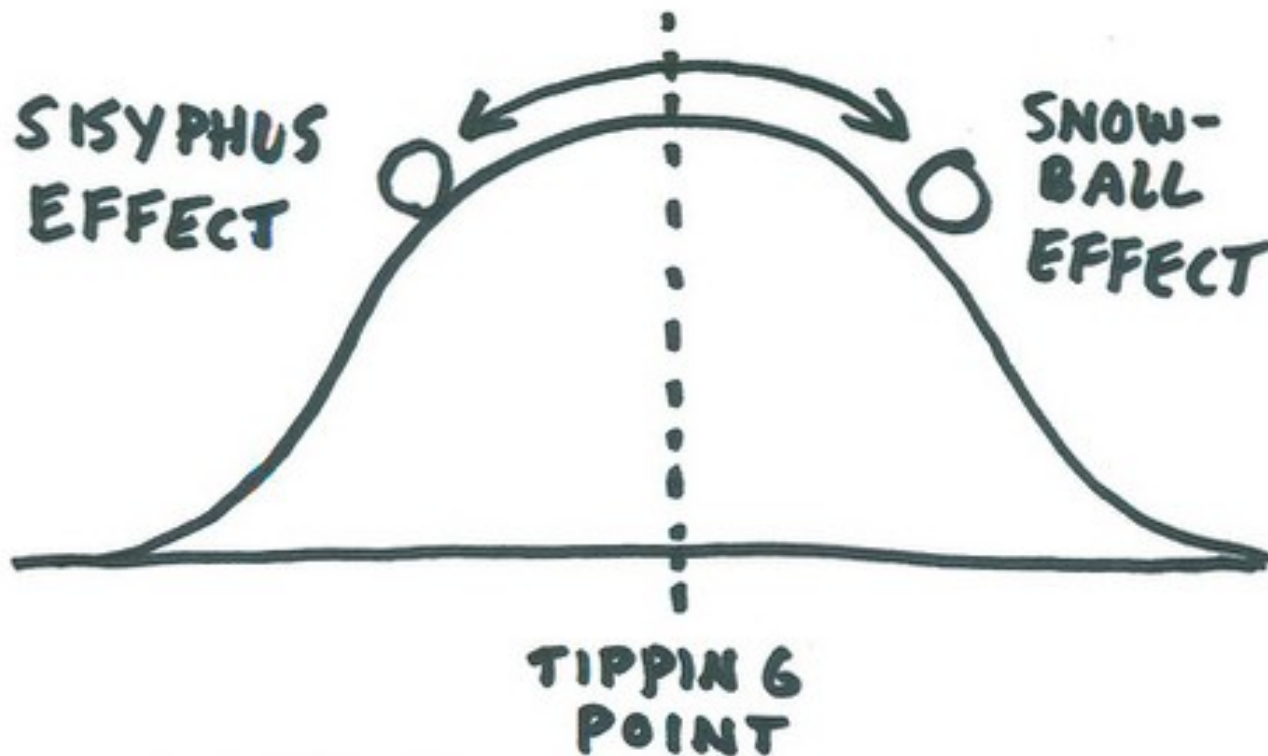


Am Wilhelmsplatz in Cannstatt geht's häufig eng zu.

Foto: Lichtgut/Max Kovalenko

The „rules of the game“ in transport need to be re-assessed.

The political debate over the sustainable transport is starting now.



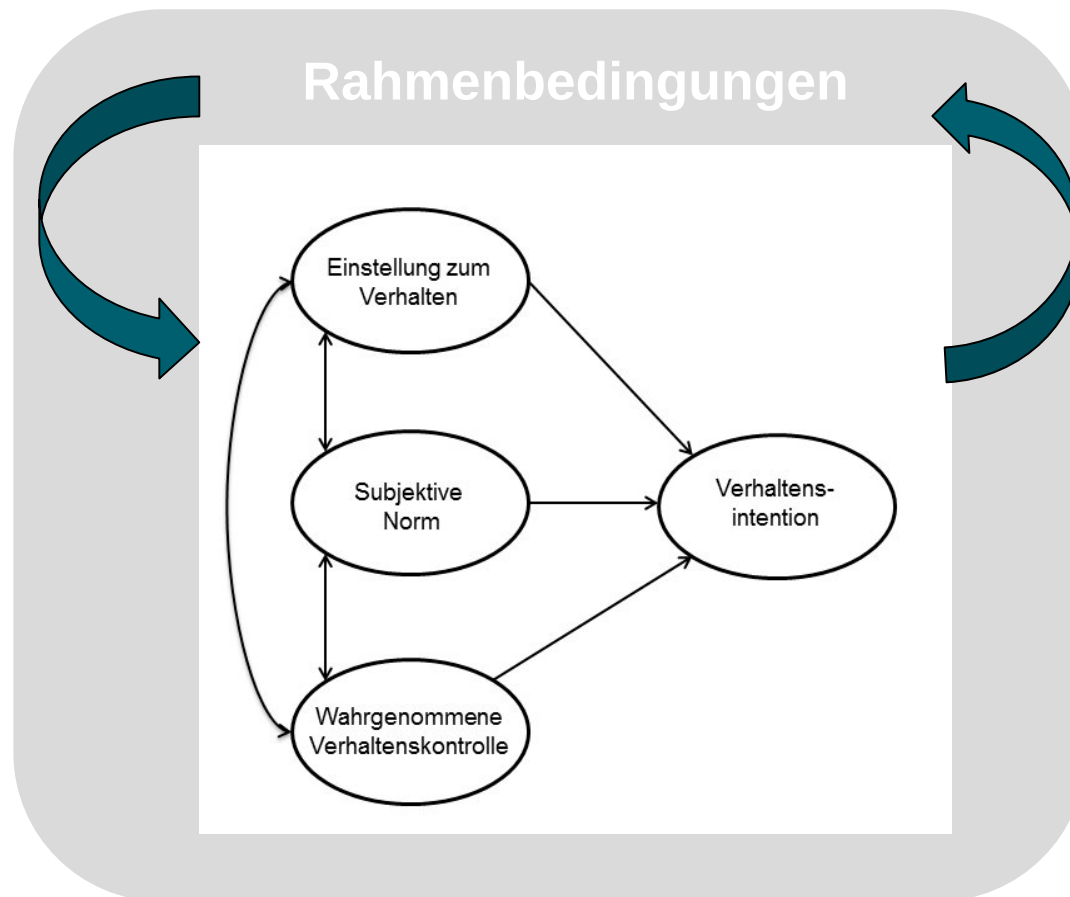
Starting points for change

We need spaces for experiments! Universities can be central players enabling a new mobility culture.



Starting points for change:

Infrastructure, knowledge, framing, „push“ and „pull“ incentives



Starting points for change

New mobility options need attractive and safe infrastructure and high service levels.



Starting points for change

Integrating new mobility services, engaging with service providers to create „seamless“ mobility.



Starting points for change

New patterns of behaviour need institutional support to become „the new normal“.



<https://www.flickr.com/photos/ciscogermany/15841474981>

Starting points for change

Values and meanings can be changed! New mobility options need to be put into a positive framing.



autodelen.info

Starting points for change

Values and meanings can be changed! New mobility options need to be put into a positive framing.



[News Oresund](#)

Starting points for change

Experimenting with „Push“ and „Pull“ incentives can encourage new travel choices.

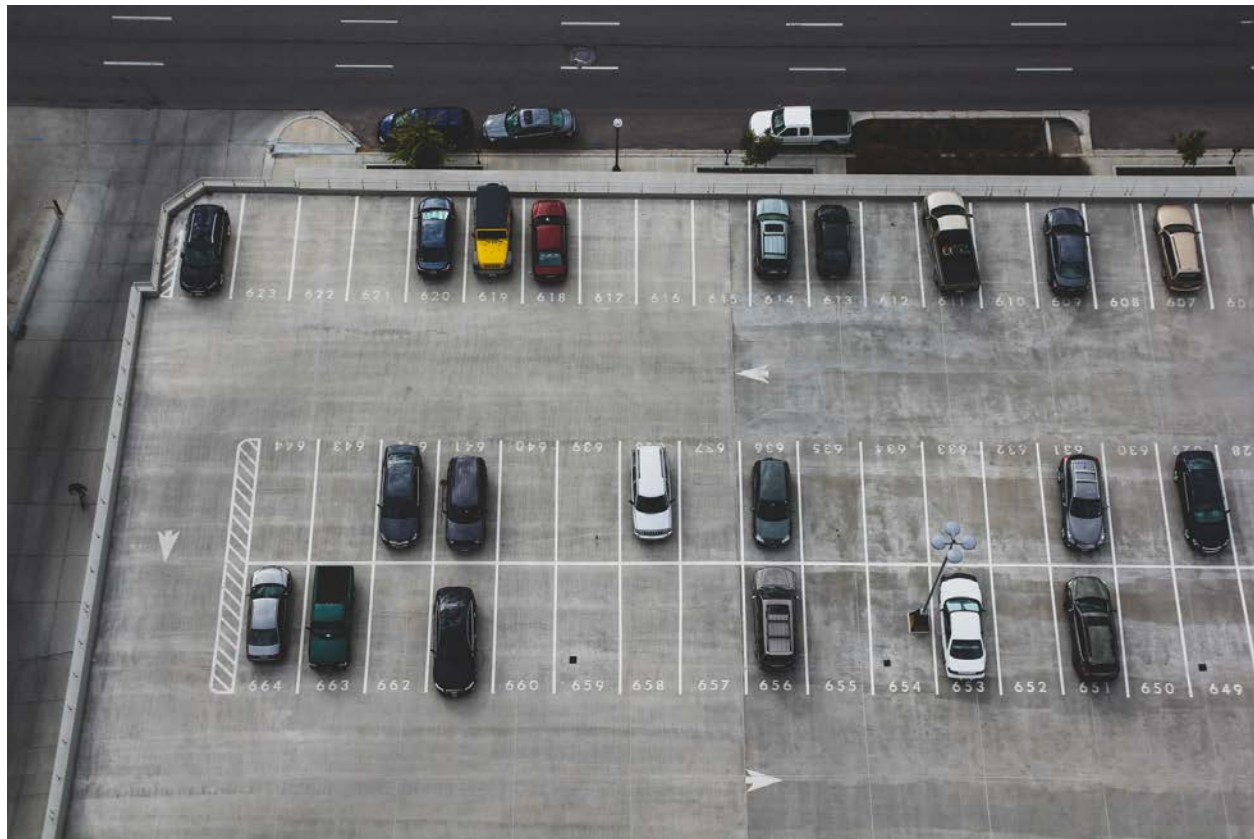


Photo by [John Matychuk](#) on [Unsplash](#)

Conclusion: Universities can be laboratories of a new multioptional mobility culture!

Experiments can set an example with high impact.



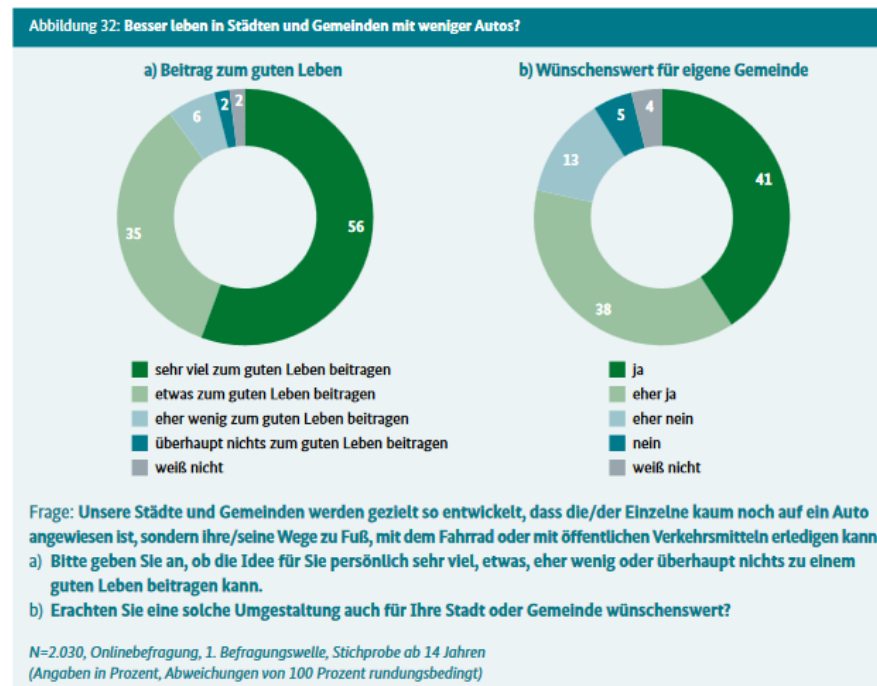
Quelle: <http://www.kaererblog.com/wp-content/uploads/2010/05/vw-kaerer-werbung-alles-in-einem-volkswagen.jpg>

Thank you for your attention.



Kernfrage in der Forschung: Welche Verkehrspolitik wünschen sich die Bürger*innen in Zukunft?

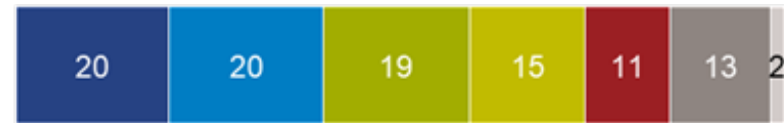
Befragungen geben Hinweise auf Wunsch nach „multioptionaler“ Verkehrspolitik.



Kernfrage in der Forschung: Welche Verkehrspolitik wünschen sich die Bürger*innen in Zukunft?

Akzeptanz für Schlüsselmaßnahmen höher als gedacht.

Um eine möglichst umweltfreundliche Mobilität zu fördern, sollten in den Städten Busse, Bahnen, Fahrräder und Fußverkehr mehr eigene Fahrspuren bekommen – auch wenn dafür der Raum für den Autoverkehr stellenweise eingeschränkt werden muss.



Um die Lebensqualität in den Städten zu erhöhen, sollten in Zukunft vermehrt bestimmte Bereiche der Stadt (z.B. Innenstadt, Wohnviertel mit guter Anbindung des Öffentlichen Personennahverkehrs) für den Autoverkehr stark eingeschränkt/gesperrt werden.



■ stimme voll zu (1,00) ■ (2,00) ■ (3,00) ■ (4,00) ■ (5,00) ■ stimme überhaupt nicht zu (6,00) ■ weiß nicht, keine Angabe

Auch außerhalb der Großstädte wird eine „multioptionale“ Mobilität möglich.

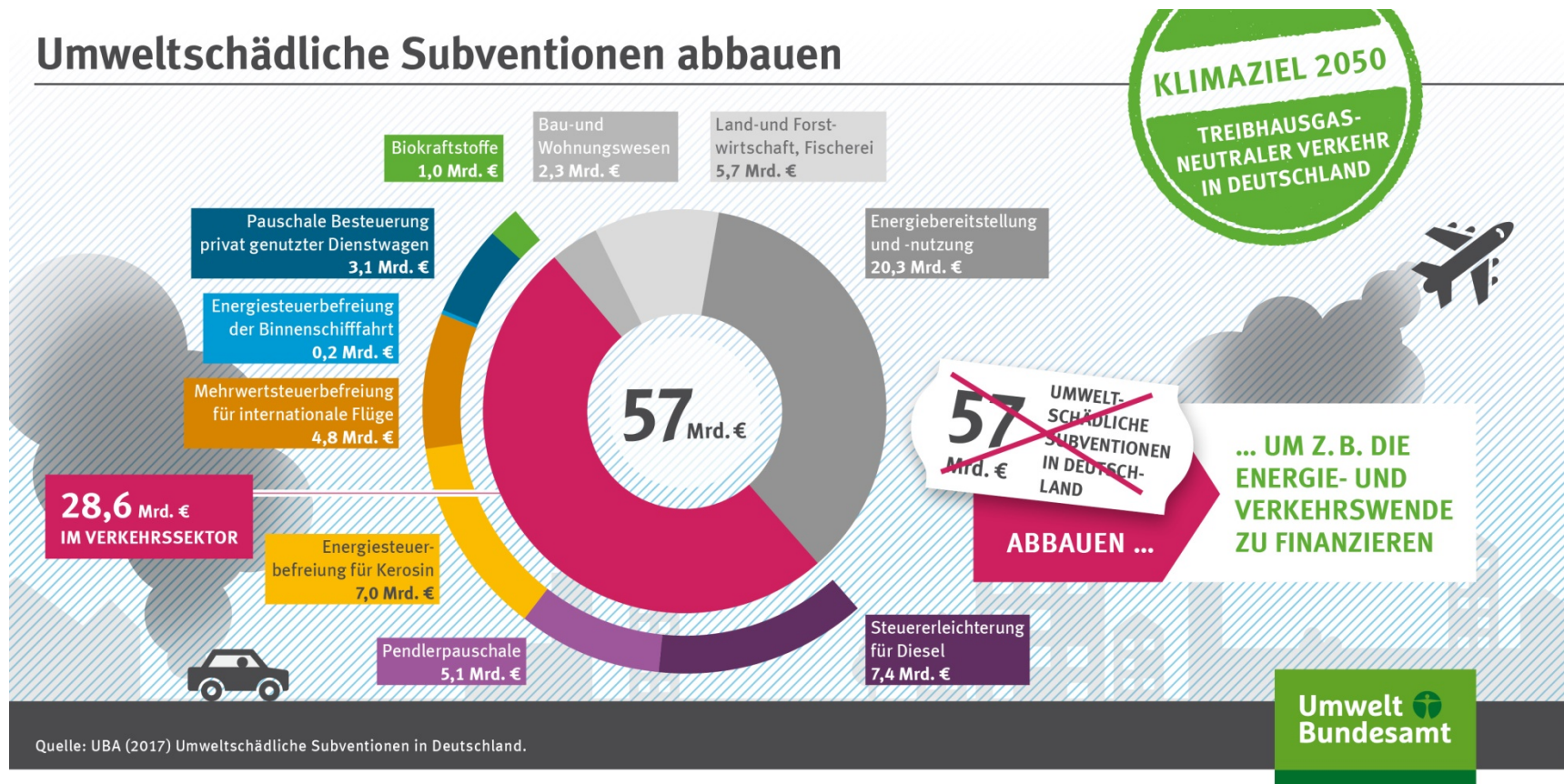
Beispiel Reform des PBefG: Digitale Plattformen ermöglichen Mitnahme.



Quelle: WZB/ InnoZ

Example: Subsidies for car and air travel

Current subsidies encourage us to use cars and airplanes.



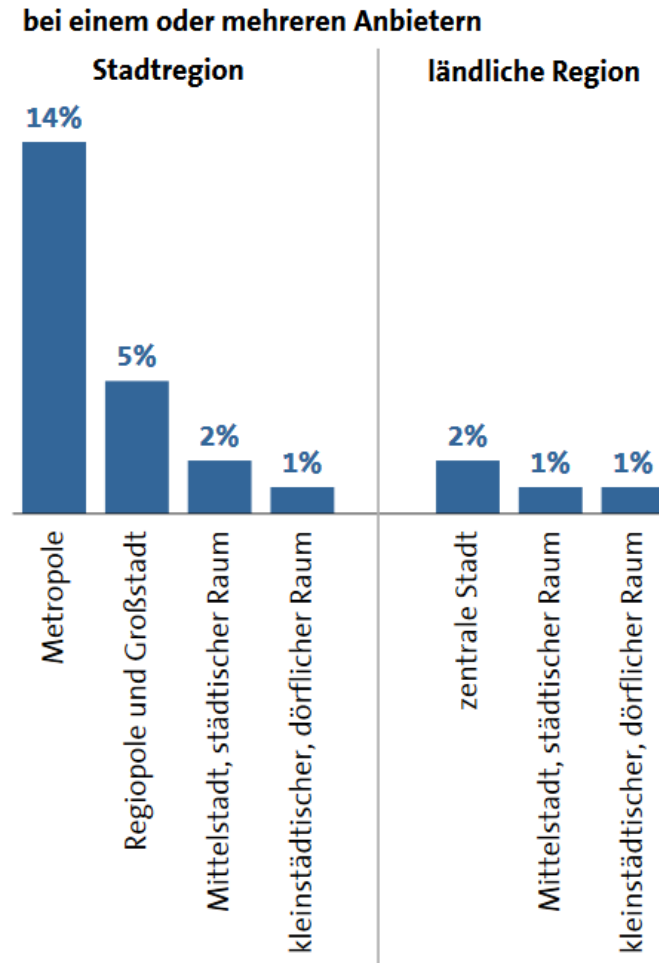
Future trend vehicle automatisatisation – No solution for resource efficient mobility.



<https://www.irishtimes.com/business/innovation/will-autonomous-cars-make-roads-safer-or-just-make-money-1.3488055>

Multioptional mobility culture becomes reality

Carsharing is moving from niche to mainstream.



Quelle: infas/DLR 2018: „Mobilität in Deutschland. Kurzbericht.“