Autonomous Driving

Today's questions for a livable tomorrow

IMPACTS Conference London 2-4 october 2019

City of
Vienna

THESIS # 1

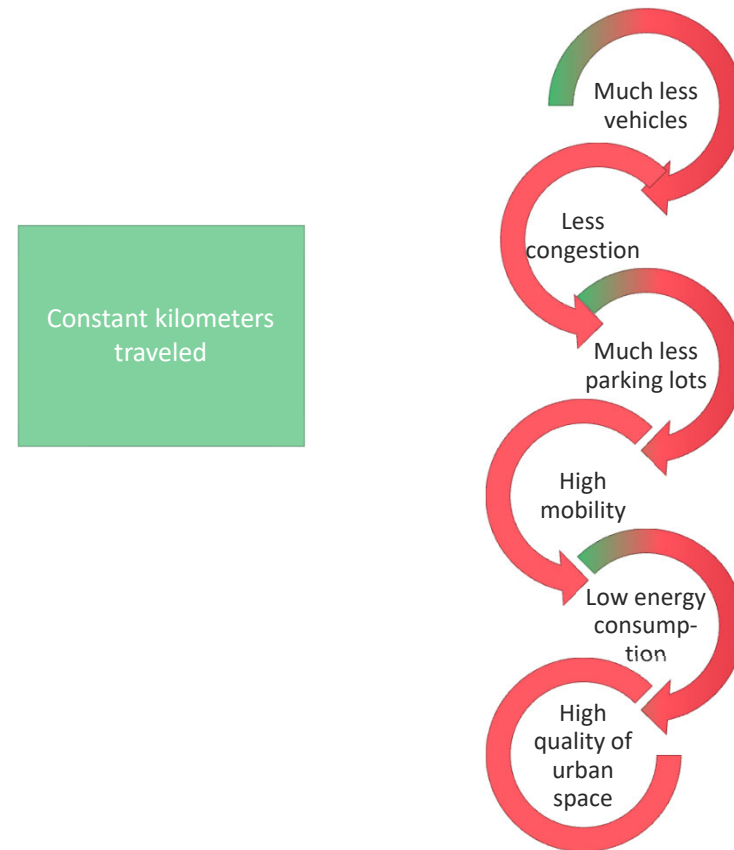Our current strategic goals are fit for the future

City of
Vienna

UTOPIA
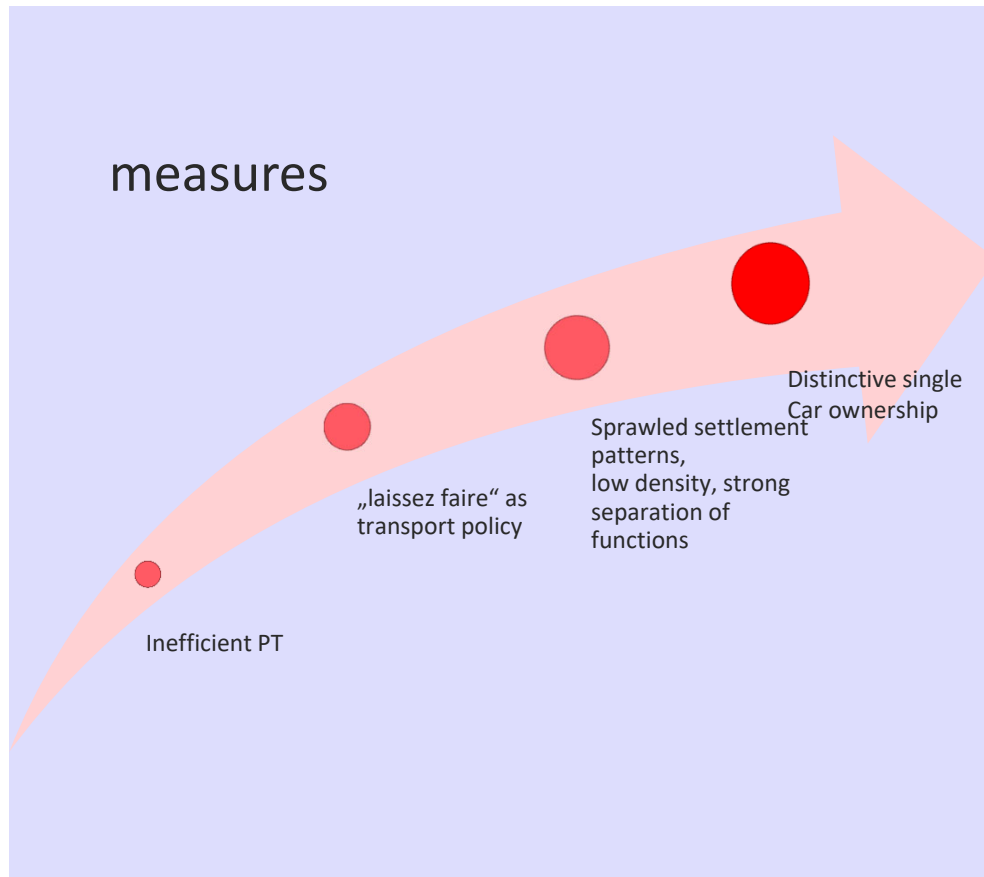
AF at level 5
high quality of live

measures

High capacity mass transport

Managing the car-utilization (fiscal, regulatory, incentives, information)

Dense, mixed use city "City of short distances"

Ride-sharing

Constant kilometers traveled

effects

Much less vehicles

Less congestion

Much less parking lots

High mobility

Low energy consump-tion

High quality of urban space

City of Vienna

THESIS # 2

Cities have to act, otherwise…

City of
Vienna

DYSTOPY

AF at level 5
little quality of live

effects

measures

Inefficient PT

„laissez faire" as
transport policy

Sprawled settlement
patterns,
low density, strong
separation of
functions

Distinctive single
Car ownership

Vehicle kilometers
travelled
increase strongly

Constant
vehicle
numbers

More
congestion

Constant
amount of
parking lots

Relatively
high
mobility

High energy
consumption

Low quality
of urban
space

City of
Vienna
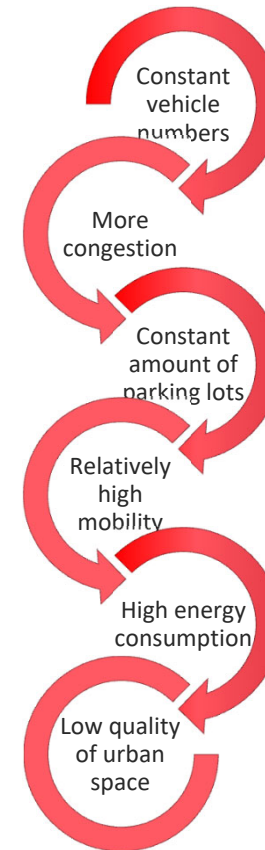
Risks

Infrastructure expenditures explode (increasing requirements for quality, need for additional (electronic) elements)

Modal shift from public transport to AF also on high capacity corridors

Marginalization of non-automated / non-networked road users
(dedicated tracks, fences, identifier chips, ...)

Loss of ability to manage traffic flows and volumes
(strong instrument "parking management" loses its most of its effect)

Unmanaged driving is likely to **increase mileage**, more congestion, and more emissions
(and consequently leads to a less livable city and possibly weakening urban locations).

City of Vienna

THESIS # 3

We do have to adapt the way we regulate

City of
Vienna

Autonomous driving

Phase out model – parking lots

- Efficient use of public space

- More space in public

- More quality of public space

- Parking lots in the best locations can be used for superior purposes

- No more need for garages (= the most expensive part of the buildings

City of
Vienna

Autonomous driving

Need of regulations transformsed…

- From parking regulations to regulations for traffic flow
- Increased efficiency (ridesharing, car sharing, optimized traffic flow)
- Complementing mass transit systems
- Management systems for traffic volume

City of Vienna

c Bilderbox

Autonomous driving

New Infrastructures..

- Into the vehicle and not on the road
- No affordable road-side-infrastructure
- Relevance for decisions about infrastructure (charging stations, C-ITS, PT,…)
- Legal framework
- Traffic control
- City-owned digital infrastructure and platforms
- Tech and industry standards

City of Vienna

Photo \ Marc Cooper

Autonomous driving

Not to forget -inclusion

Pedestrians detected and not connected

Demand-orientated Mobility Services (MAAS)

City of Vienna

What cities should do about the disruptive innovation

City of
Vienna

The Holy Trinity
AM should be

autonomous

shared

electric

City of
Vienna

A Car is a Car is a Car…
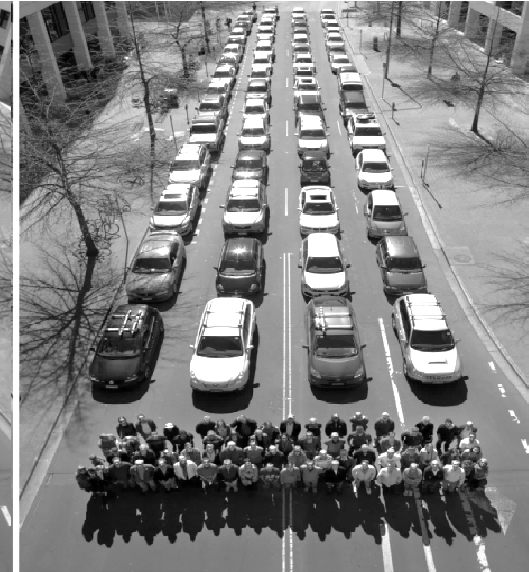
High-performance public transport can not be replaced in a large city, it´s simply missing the space

Conventional car   Electric car   Autonomous car

City of
Vienna

The future cities

As urban as possible

- Automated vehicles have to work in mixed traffic

- Non automated, „non-connected" road users (cyclists, pedestrians) must be kept in mind)

- No special regulations for AF, like fenced lanes

- Not to make the same mistake a second time – to design the cities for cars

City of Vienna

Basic positions of the city of Vienna on automated vehicles

Automated mobility does not change how we develop a livable city with quality public spaces - AF opens up new opportunities and solves regulatory needs and design issues.

- Overarching transport policy objectives according to SCWR and Urban Development plan remain upright.

- Automation supports the transport, public value added is important

- Ensuring "general interest" in the area of mobility through responsible companies / institutions

- Automated mobility does not change how we develop a livable city with quality public spaces - AF opens up new opportunities and solves regulatory needs and design issues.

Stadt Wien

Space and efficiency

Promotion of space-efficient traffic modes

High-performance public transport axes are irreplaceable for reasons of energy and space efficiency in urban areas. Increased efficiency and cost savings through demand-oriented services are interesting for the "last mile" and outskirts areas.

Incentives to high occupancy levels

Transition area to public transport, ride sharing

Incentives for alternative drives

Use of zoning and settlement boundaries

The goal continues to be sustainable settlement structures, even if travel time budgets and travel distances increase due to automated vehicles. Cooperation in the region

Stadt Wien

Infrastructur

The revolution of automated / autonomous vehicles takes place in vehicles and not in public space or in humans.

☐ Automated / autonomous vehicles should be able to handle the existing traffic guidance systems and announcements.

☐ Sensors, technology for real-time mobility management etc. must be accommodated as far as possible in vehicles. Current shortcomings of machines are overcome by technological advances.

☐ International standardization must not be at the expense of the street owners.

☐ Priority for people, therefore no structural "protective devices" for private vehicles in urban areas

☐ Non-motorized road users must be recognized. No sender on or chips in people or roadside infrastructures.

☐ "Special lanes" for automated vehicles when particularly high occupancy levels are reached or for classic public transport


City of Vienna

Traffic management

The data generated by automated / autonomous vehicles on public roads must be publicly available (free of charge, anonymised) for planning and traffic control purposes.

These points have to be demanded with regard to international norms / standards. Routing should aim for system optimum

Stadt Wien

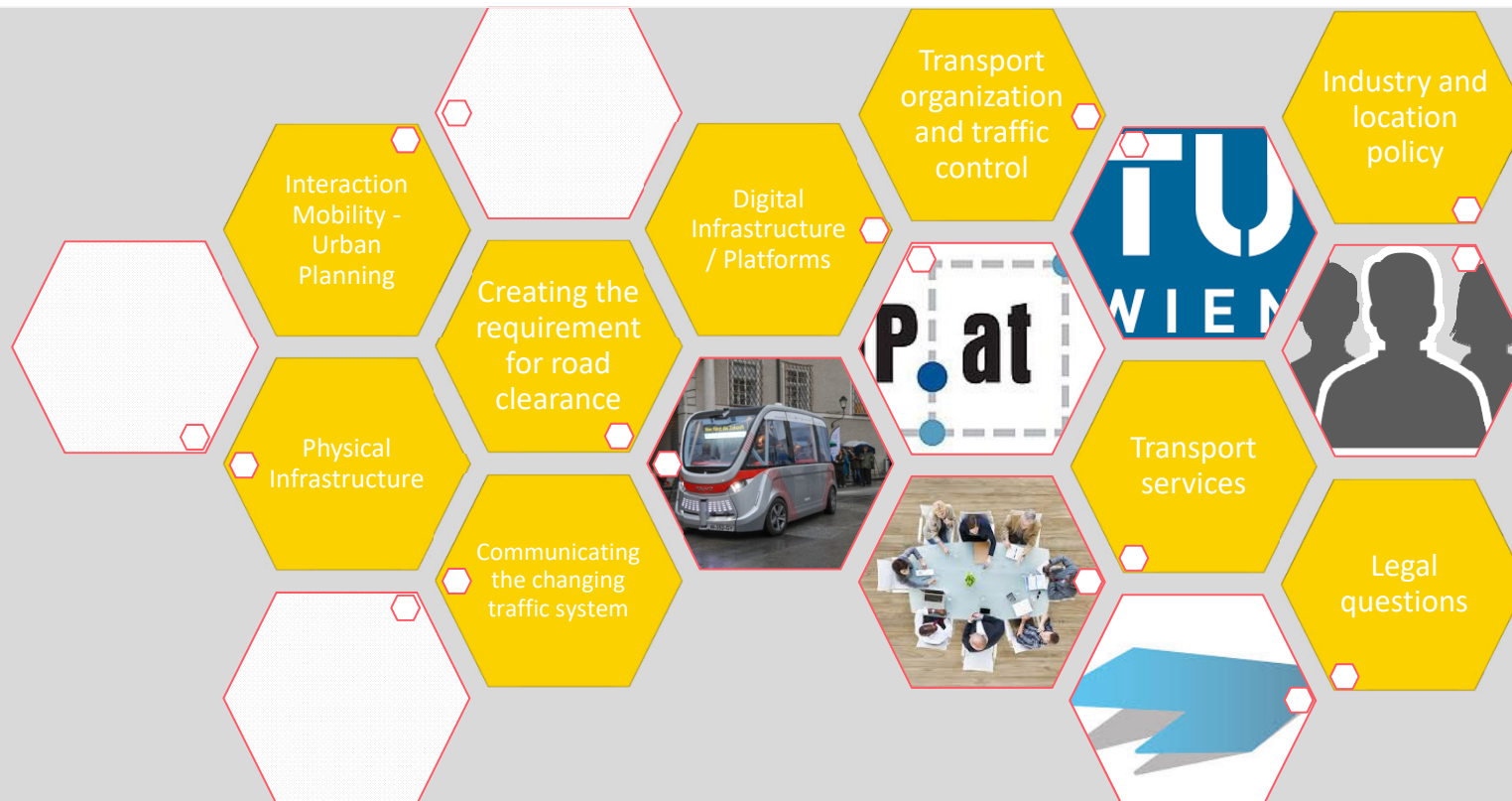Thoughts on the benefits of future traffic planning
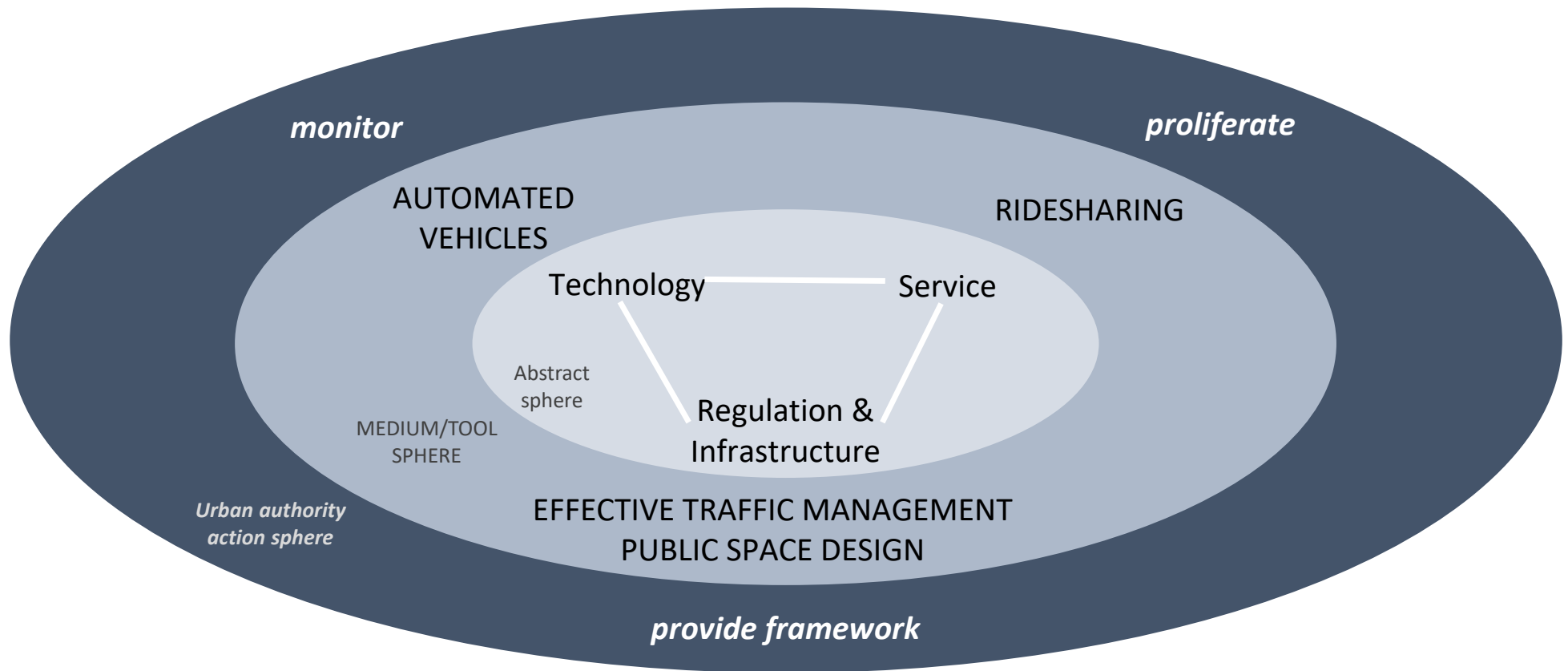
summary

Support for automation in transport as a contribution to mobility policy objectives

Vienna is aiming for a pioneering role in the development of mobility services with the support of automated vehicles.

Focus on automation in the field of public transport
Regulatory conditions must be actively

City of Vienna

Core responsibilities for a City (of Vienna)

Interaction Mobility - Urban Planning

Transport organization and traffic control

Industry and location policy

Digital Infrastructure / Platforms

Creating the requirement for road clearance

Physical Infrastructure

Transport services

Communicating the changing traffic system

Legal questions

City of Vienna