

EDAG CITYBOT

A COMPLETE ECOSYSTEM FOR ALL URBAN TRANSPORT
AND WORK TASKS IN A SMART CITY

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FULLY AUTOMATED ROBOT CARS
MODULAR VEHICLE CONCEPT
E-DRIVE AND FUEL CELL DRIVE
ELECTRIC IN-WHEEL ENGINES
AVATAR FOR HM-INTERACTION



Tractor Modul

Trailer-/Backpack Modules

24/7 OPERATION TIME VARIOUS ADD-ON MODULES/GADGES EFFICIENT AND PROFITABLE



THE RELAX POD HERO
creates wonderful worlds for you to experience



THE EMERGENCY CALL HERO
is there in case of emergency, works as a city guide or in security



THE CLEANING HERO
keeps the city and its parks clean, provides winter services and other services



THE LEAF COLLECTION HERO
automatically gathers up fallen leaves



THE GROUP TAXI HERO
takes city dwellers from A to B



THE GARDEN MAINTENANCE HERO
does the gardening when everyone is asleep



24 \ 7 \ 365



THE VIP LOUNGE HERO
offers a completely new dimension of mobile comfort



THE PARTY HERO
sets a club feeling all of its own in motion



THE SUPERMARKET HERO
provides a mobile shopping experience



THE PIZZA HERO
delivers delicious food fresh to your door



THE PARCEL STATION HERO
delivers all kinds of parcels

THE CITYBOT CAN MEET ALL THE CITY'S GOALS



AIR POLLUTION

NOISE POLLUTION

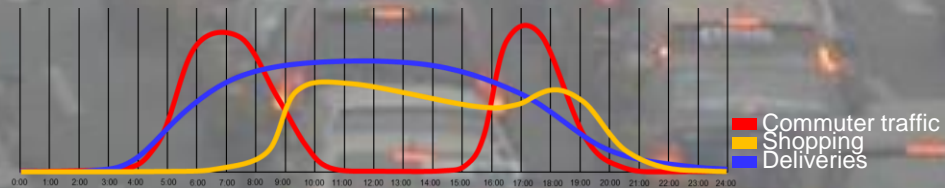
STRICT CLIMATE REGULATIONS

SPACE PROBLEMS IN CITIES

GRIDLOCK

TRAFFIC JAMS

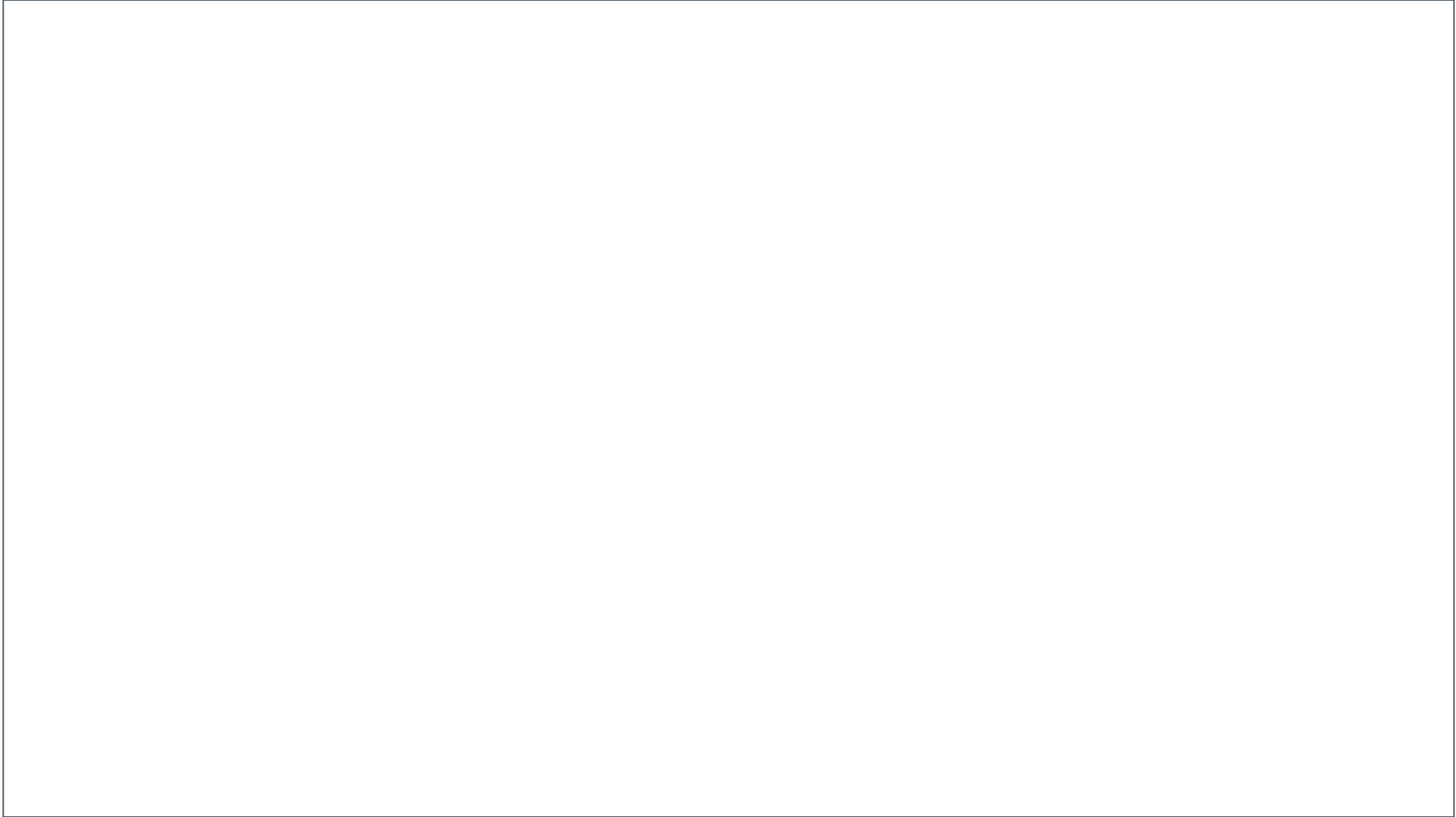
ACCIDENTS



PEAK/OFF PEAK PERIODS WITH PUBLIC TRANSPORT

INEFFICIENT UTILISATION OF VEHICLES

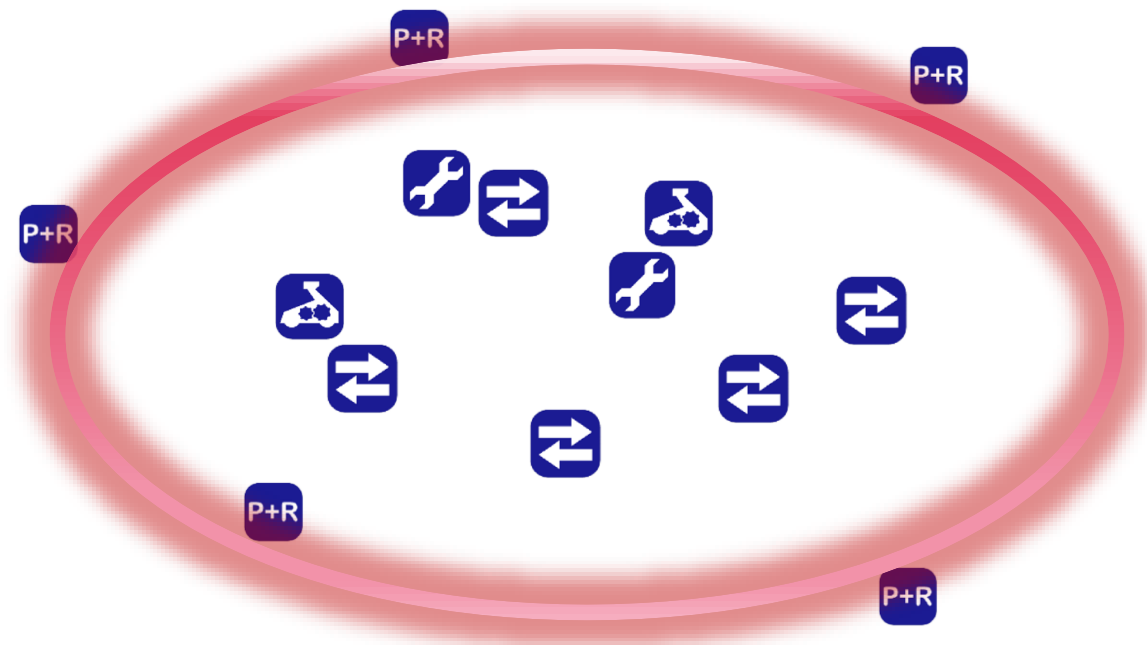
CITYBOT VIDEO



<https://www.youtube.com/watch?v=EUGloMFLp-o>

CITYBOT OPERATION ZONE

NO MIXED TRAFFIC
ONLY PEDESTRIANS, BICYCLES ARE ALLOWED
MAX CITYBOT SPEED 30KM/H



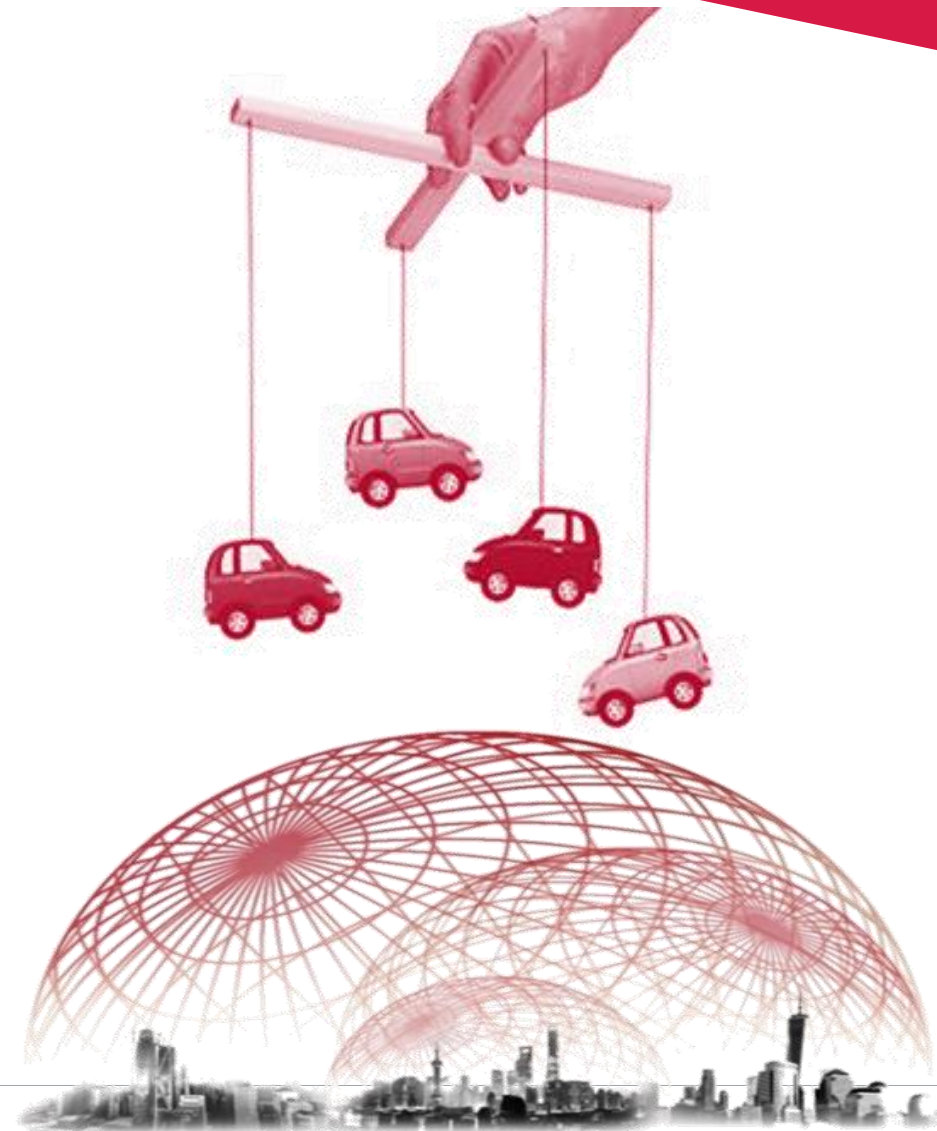
AVOIDING TRAFFIC JAMS AND GRIDLOCKS

Traffic management software (puppets) ensures

- a constant flow of traffic
- central route planning
- coordination, selection

Scalable software backends in the overall system

- edge computing
- Traffic management software
- Operation system
- Payment system



Hardware Stack

Software Stack

Business Stack



EDAG CityBot Mobility Backend Stack

Connected to the
Smart City Operation
System

- Booking
- Route planning
- Configuration
- Selection

GOALS OF THE CITY FULFILLED!



Priority for pedestrians and preventing accidents.

Transparency about money and data flows.

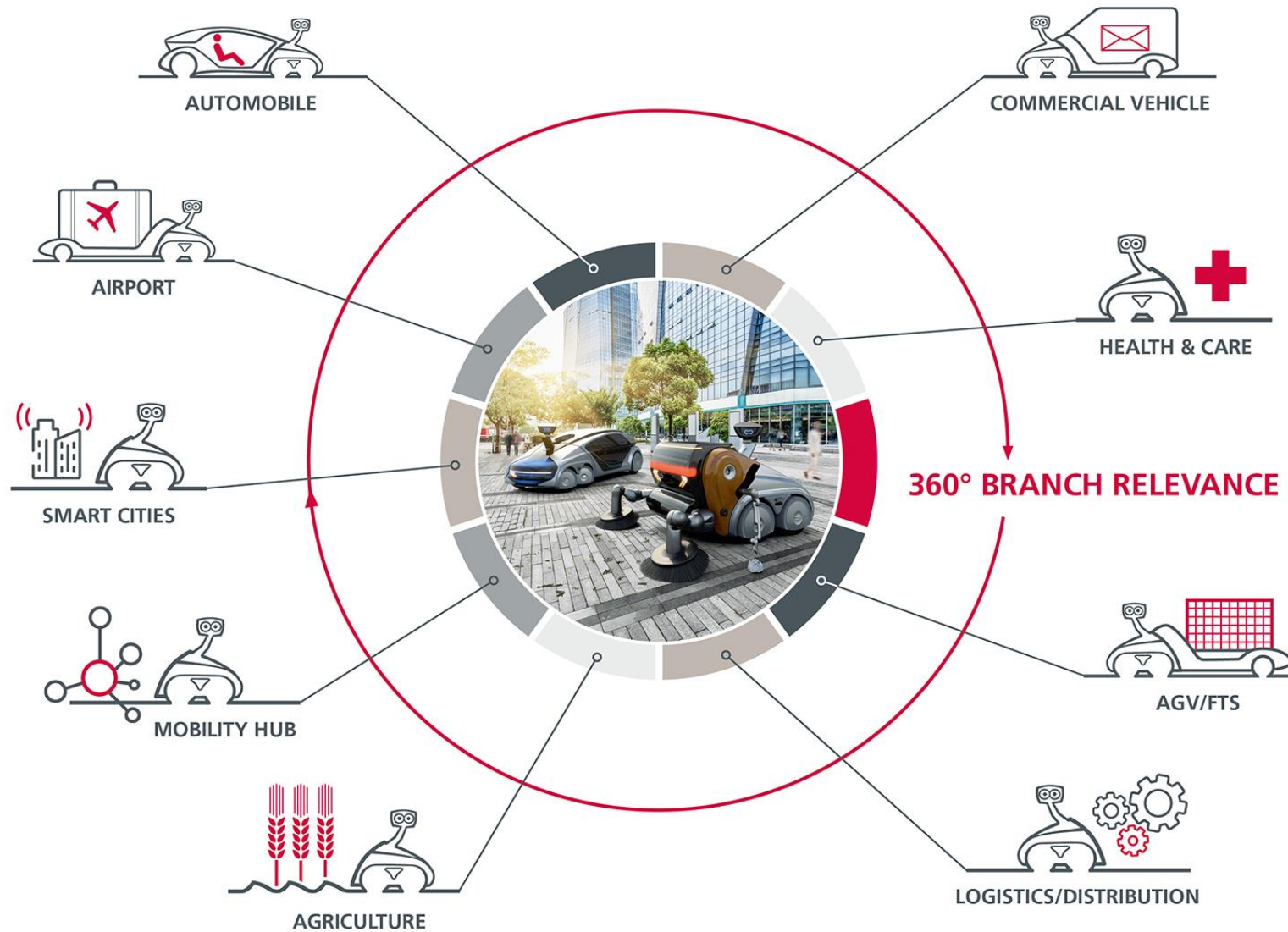
Different use of public space.
Expansion of cycle paths.

Reduction of inner-city emissions.

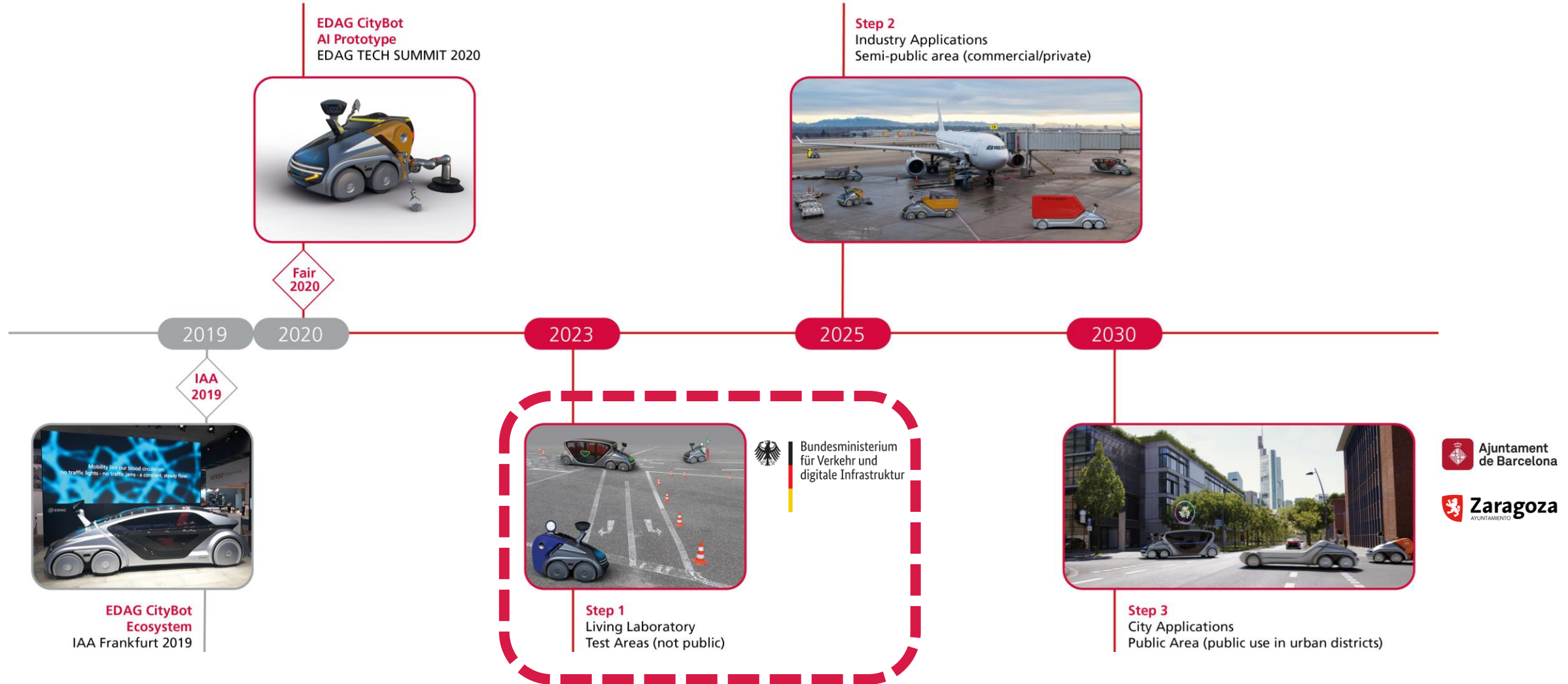
Reducing the number of vehicles in congested urban areas 527 → 100.

Reduction of investments in single-function vehicles.

BRANCH RELEVANCE APPLICATIONS



EDAG CITYBOT ROADMAP



EDAG CITYBOT AI-TECHNIC DEMONSTRATOR



World premiere

Drivable and workable EDAG CityBot AI-demonstrator to pick up rubbish

Self-localization

- Sensor data fusion
- Landmarks, digital maps

Object detection

- Neuronal networks

Trajectory Planning

- Driving strategy, evasive action

360° Chassis

- Agil and flexible

VCU

- Central Vehicle Control Unit with open middleware API

CITYBOT PROTOTYPE TECHNICAL SPECIFICATIONS



Dimensions: 2.40mx 1.75m (height 1.59m)

Weight: 690 kg

Number of drives: 4 wheel hub motors (synchronous machines)

Drive power: 4 x 10 kW continuous, 80 kW peak power

Number of steering axles: 4 with a steering angle of 42 ° / 90 °

Driving modes: tight cornering, skid steering, rotation, heading offset

Battery capacity: 14.4 kWh, Li-Ion, 48V

Sensor systems: 4 LIDAR's, 12 ultrasonic sensors, 2 RGB cameras, 2 depth cameras, 1 laser distance sensor, 1 sound location system, 1 microphone

Gripper system: Modular 7-axis robotic arm



EDAG INNOVATION CAMPUS FREECITY



„Campus FreeCity“ in the „Arena of IoT“ at Deutsche Bank Park Frankfurt

Campus Free City: Living Lab to explore a networked fleet of modular robotic vehicles

Characteristics of innovation:

- Modular, networked, automated robotic vehicles perform coordinated transportation tasks and communicate with pedestrians via avatar
- A control system connects vehicles, environment, operations center, customers and vendors, optimizes fleet operations and enables teleoperation
- Integrated order management from mobile device app to secure payment



Gefördert durch:



Bundesministerium
für Digitales
und Verkehr

aufgrund eines Beschlusses
des Deutschen Bundestages

Project consortium:



Customer benefit:

Challenges

- Present EDAG's "CityBot" vision in its entirety and bring it to life
- Elaborate potentials and realization details of this novel mobility concept

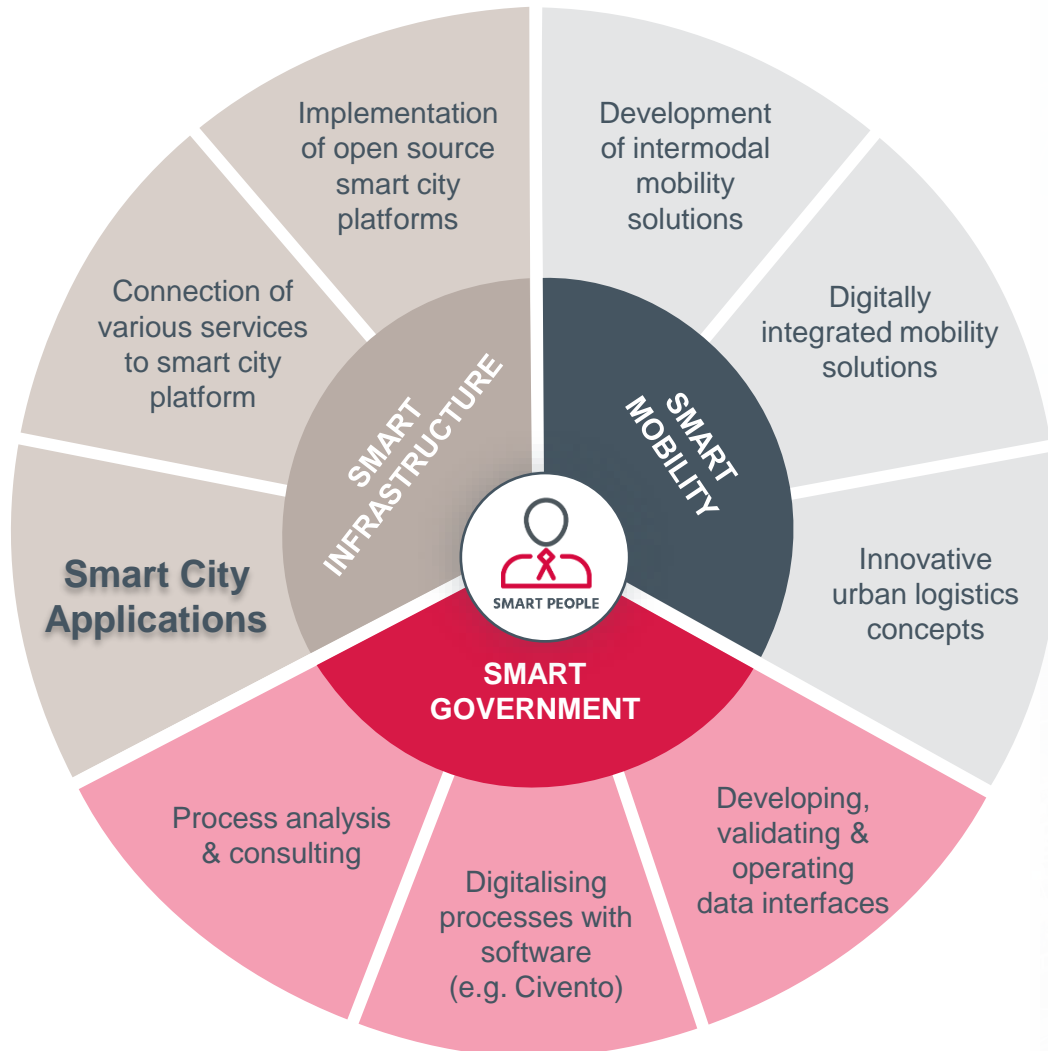
Solution

- First real-lab scale demonstration of the CityBot ecosystem.
- 9-month laboratory operation with several networked vehicles to answer the research questions

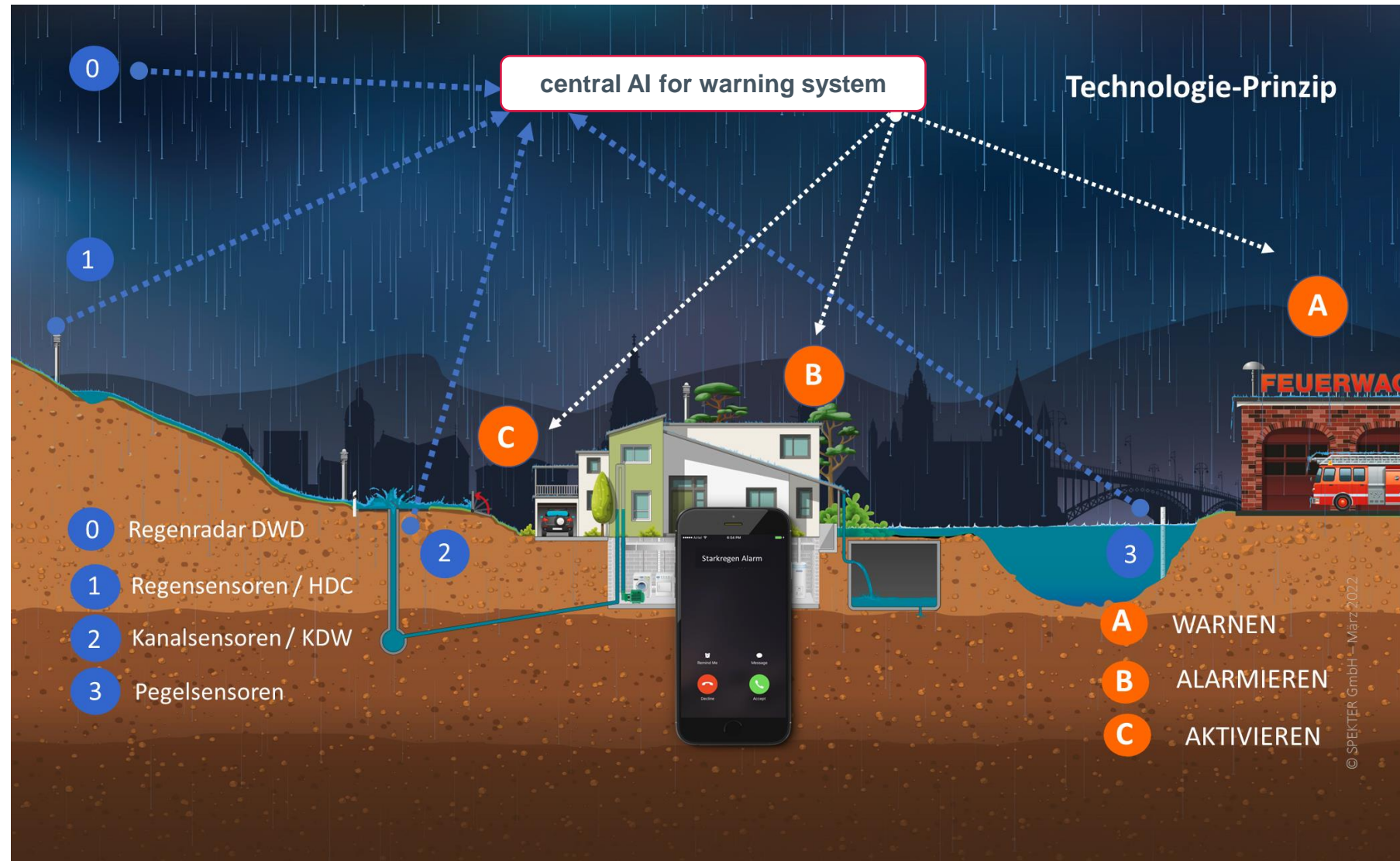


IT'S ALL ABOUT THE DATA

SMART CITY OUR PORTFOLIO



HEAVY RAIN ALARMING SYSTEM




Real-time Map


Heavy Rain Map


Risk Map


Risk Profile



Information

Rsik Map for Heavy Rainfall

- Show risk map
- Show building data ALKIS

Sichtbarkeit: 100 %

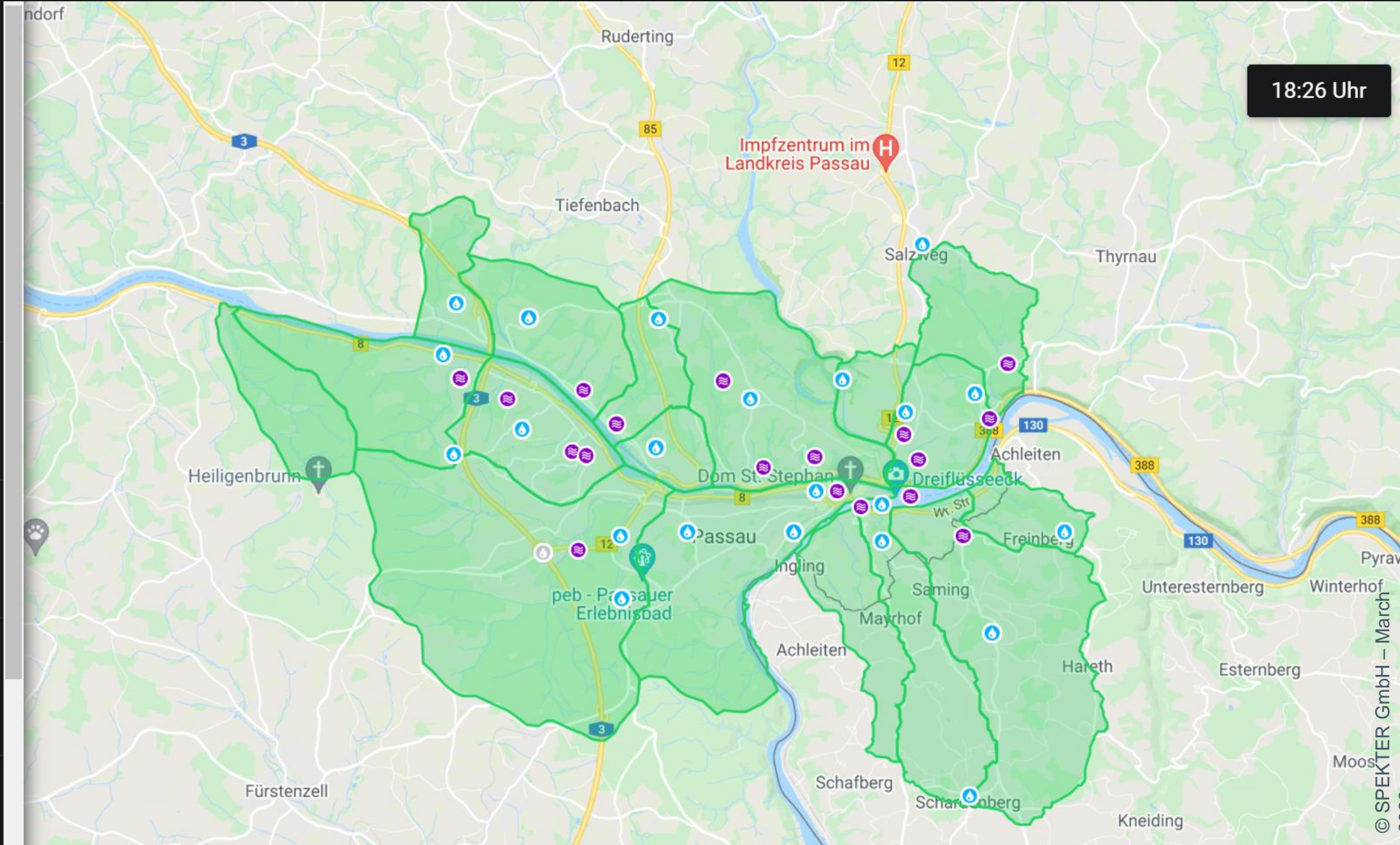
Wassertiefen Starkregenkarte:

-  5 - 10 cm Wassertiefe
-  10 - 50 cm Wassertiefe
-  50 - 100 cm Wassertiefe
-  > 100 cm Wassertiefe

Hochwasserkarten HQ (amtlich)

- Hochwasserkarten (HQ) anzeigen

18:26 Uhr








Real-time Map


Heavy Rain Map


Risk Map


Risk Profile


Control

-  Real-time Map
-  Heavy Rain Map
-  Risk Map
-  Risk Profile

Smart City @EDAG - September 2022





rescue teams and citizens

Risk of waterlogging

risk of flooding

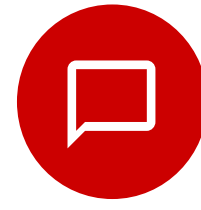
flash flood risk



App



Email



SMS



VoiceCall



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