

ASECAP DAYS



ISTANBUL 2023

Celebrating
50 YEARS
OF Successful
TOLL ROAD PROJECTS

LESS CONGESTION MORE FREEDOM

Christoph N. Demuth

christoph.demuth@kapsch.net

Kapsch TrafficCom AG, Vienna

Digitizing transport infrastructure to foster greener, smarter, automated, safer and congestion-free mobility

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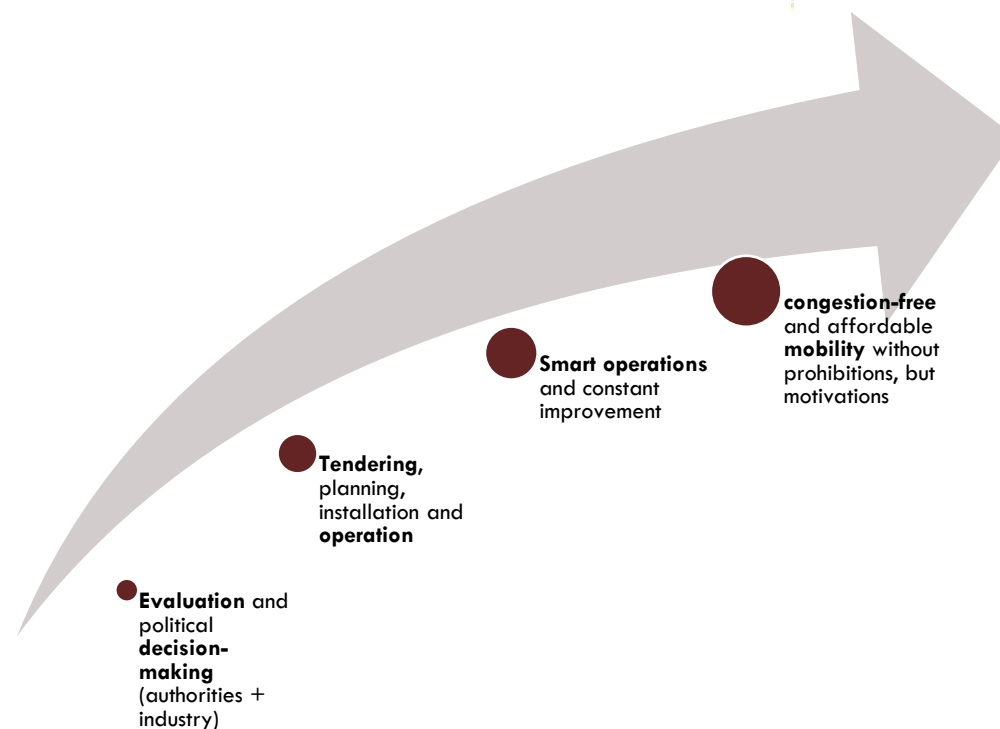
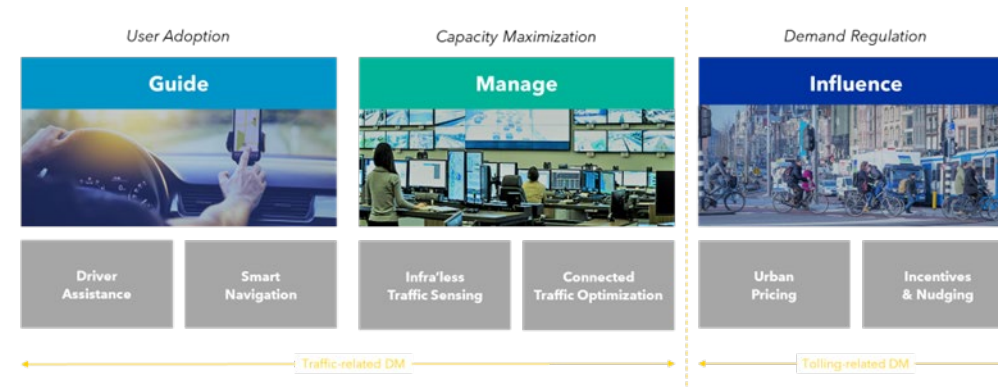
YAVUZ SULTAN SELIM BRIDGE
AND
NORTHERN RING MOTORWAY

Challenges for the players in transport policy...

- **Decarbonized** mobility
- **Congestion** due to urbanization, increase of traffic, increase of registered number of vehicles
- Mobility **accessible** to all citizens
- Limited **Capacities** of mobility infrastructure
- **Financing** of mobility
- **Public Administration** due to vertical separation of power and bureaucracy
- Correlation between **prosperity** and mobility

Possible Solution

- **Digitalization** of mobility infrastructures (road infrastructures)
- **Integration** of existing road sensors and new sensors within modern **traffic management platforms**.
- Enabling **V2X** (C-ITS) incl. autonomous driving
- **Reduction of congestion** and negative environmental impacts by *digital measures* (ITS-Solutions) and flanking **mobility pricing**
- **strategic traffic management:** traffic flow, safety and less space requirement



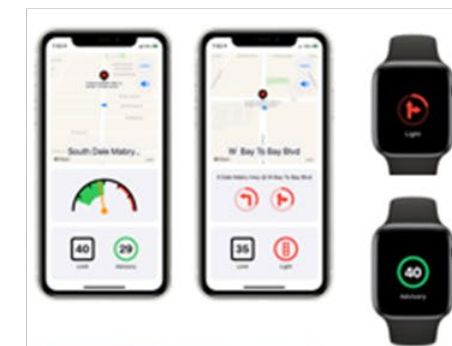
Guide – Driver Assistance.

Guide	Manage	Influence

Eco Driving

- **Speed advice** ahead of signals
- Red light count down
- **Smartphone, mirrored, in-dash** (via TTS)
- **Cars & bikes**

User stress reduction
Fuel savings 15%
No stop bike rides



Signal
safely
passed



Signal
will be
red

Green
in 22
seconds



Guide – Driver Assistance.

Guide	Manage	Influence

Safety Warnings

- **DLVP to road user**
 Detects potential collisions and dangerous situations.
- **In-app virtual hazard warning flashlight.**

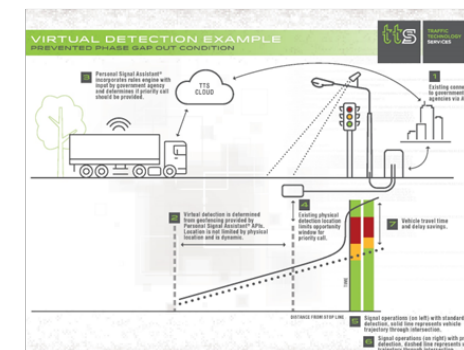
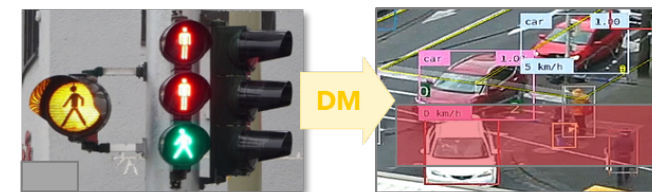
User stress reduction
 Life-safety gains



Virtual Detection

- Geo-fence generated events trigger physical detectors
- Private vehicles: in-app , in dash
- Truck / transit / first responder preemption

Infra'less preemption
 Highly attractive UX gain
 Defense in vehicle space

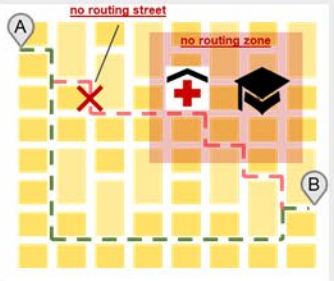


Guide - Smart Navigation.

Smart Navigation

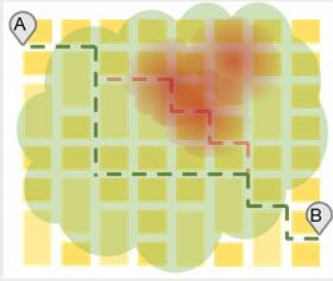
„Superior UX - better than Google“

Vulnerable Areas



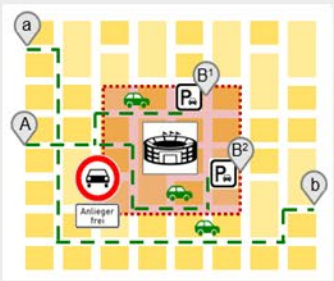
City rules enforced
 Quality of life

Air Quality



WHO thresholds
 Health gains

Large Events



Managing demand peaks

Green Waves



Fastest routes (-10%)
 Best ETA*



* Estimated Time of Arrival

Manage – Connected Traffic Optimization.

Guide	Manage	Influence

Load Balancing

- Today's unbalanced routing oversaturates bottlenecks and leads to oscillating traffic patterns
- **Proactive**, even distribution of vehicles resolves that
- **5%** of vehicles **connected** suffice

-90% congestion (!)

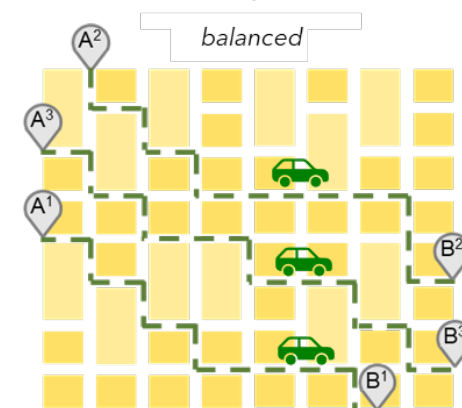
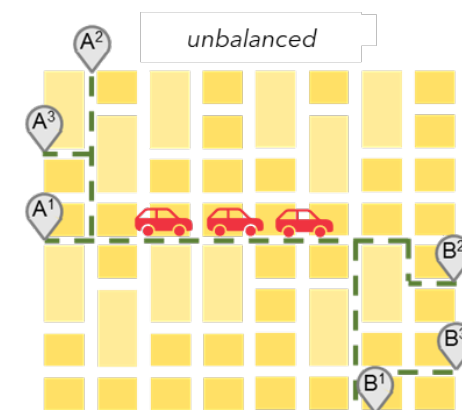
-25% emissions

...incl. signals

- Simultaneous optimization of routes and signals
- Spin-off of ongoing Load Balancing development

Further efficacy boost

Load Balancing defendable in vehicle space



Influence – Incentives & Nudging

Targeted Suggestions

- Registered users get timely and personalized suggestions for sustainable mobility choices
- Based on behavioral psychology, habits & other circumstances, reinforced by gamification

Improved user interaction
Further improves tariff efficacy

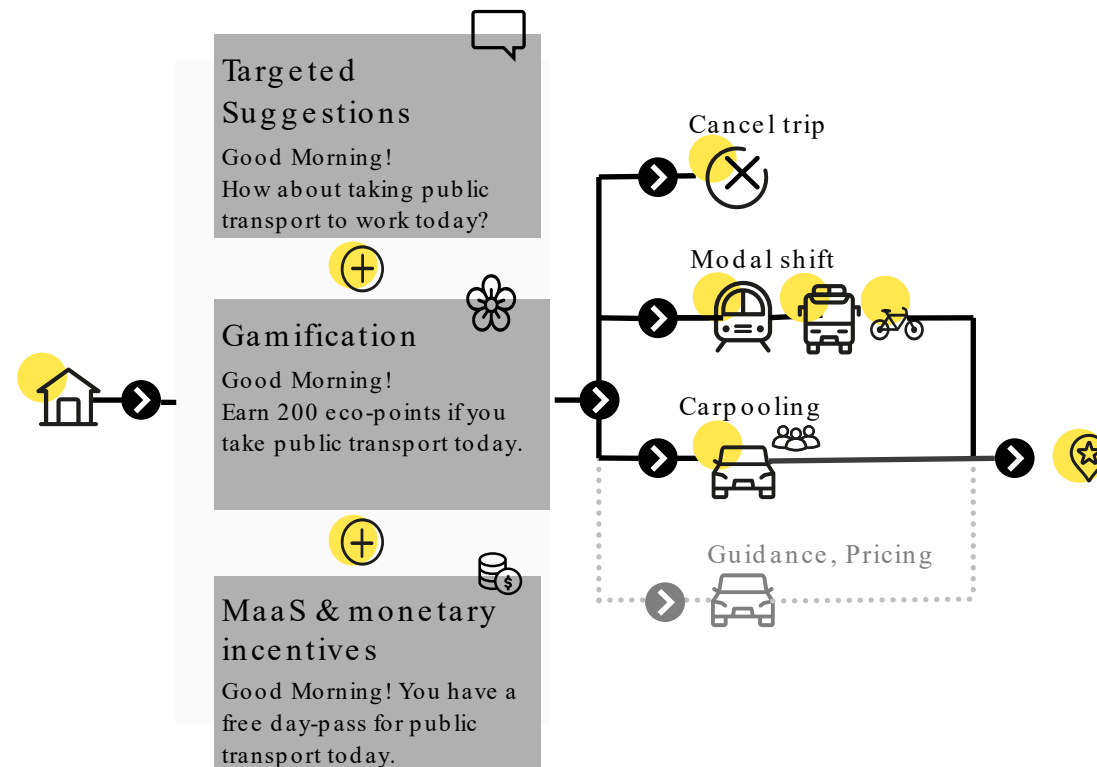
TaaS & MaaS*

- Unified traffic, tolling & mobility aaS front-end
- Link to Tolling Services
- Full integration

GDPR+ privacy
Strong USP

* Will be available from 2025

Guide	Manage	Influence



Influence - SMART Mobility Pricing



All-Road Tolling

- All road tolling for all vehicles on the road network
- Identification by devices, such as i.g. OBU for commercial and Public Transport and App or In-Car Systems for passenger vehicles
- Price Differentiation by Time (peak/off-peak), Location and/or Road Type, Type of Vehicle, Type of Road User
- Pricing of Externalities
- Price autonomy for different governmental bodies (National States, Federal countries, districts/counties and municipalities)
- Generation of earmarked revenue

THANK YOU

Dr. Christoph Demuth

Senior Solution Consultant

Kapsch TrafficCom AG
Am Europlatz 2

1120 Vienna | Austria

christoph.demuth@kapsch.net

www.kapsch.net

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TAJUT SUKSES SEMBROOD
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