

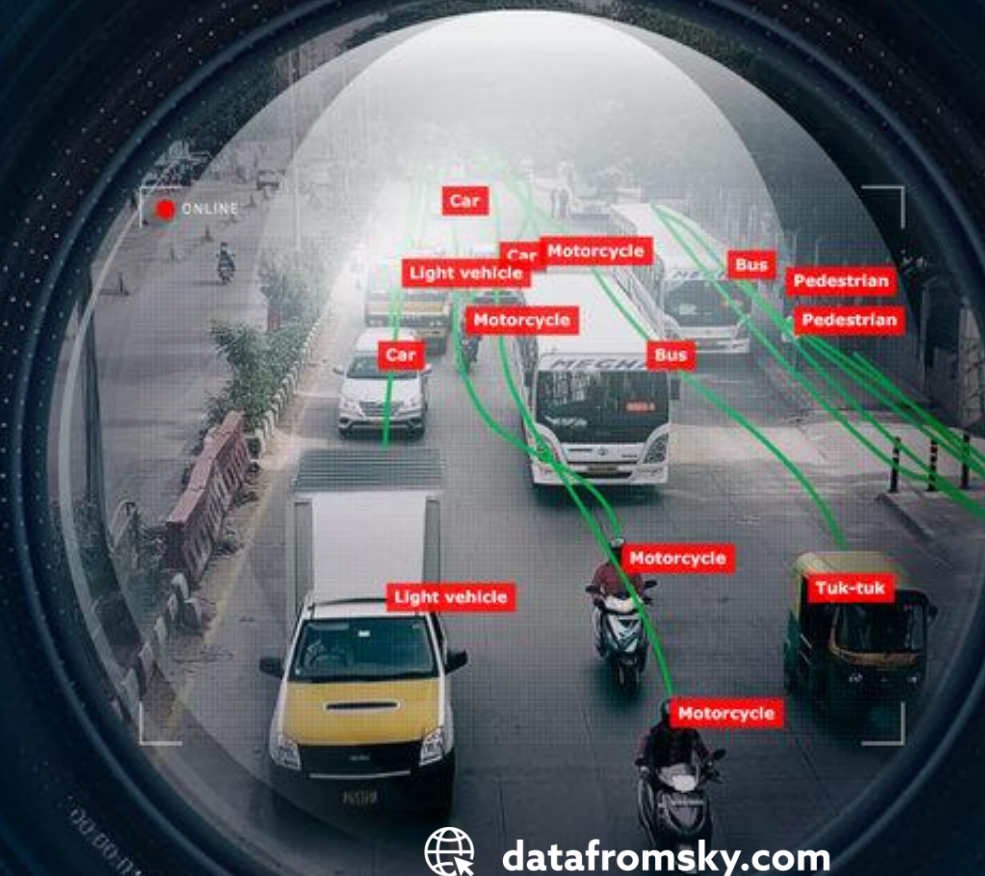
FLOW.

INSIGHTS

the sixth traffic sense

Video AI v monitorování dopravy

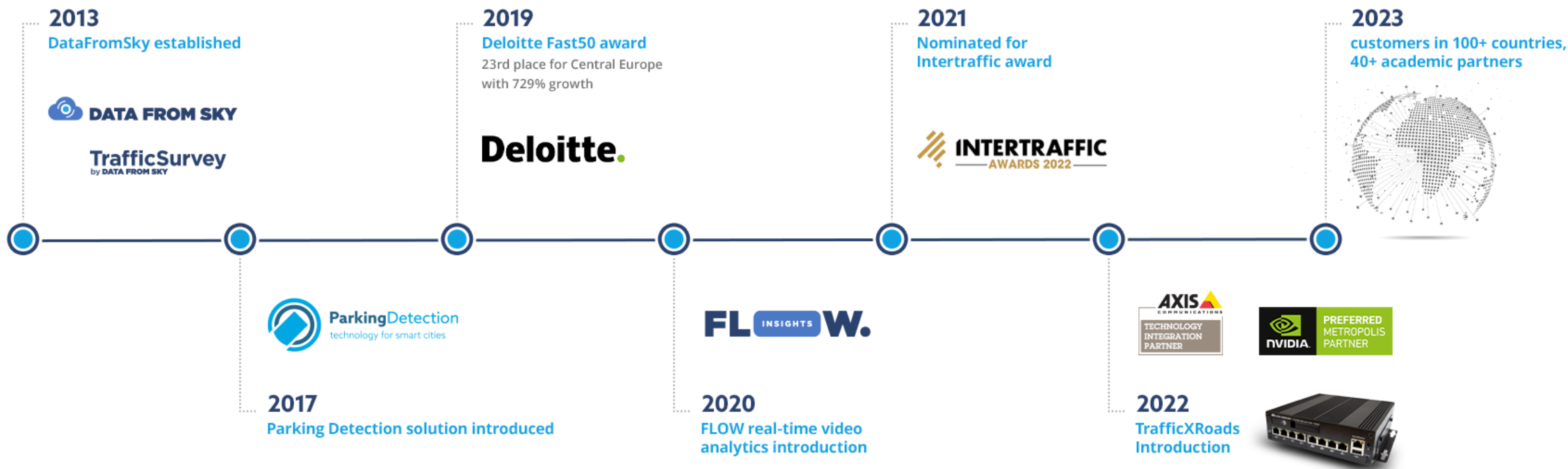
David Herman, 23. 1. 2024, AI DAYS 2024



 datafromsky.com

 info@datafromsky.com

 [/company/datafromsky](https://www.linkedin.com/company/datafromsky)

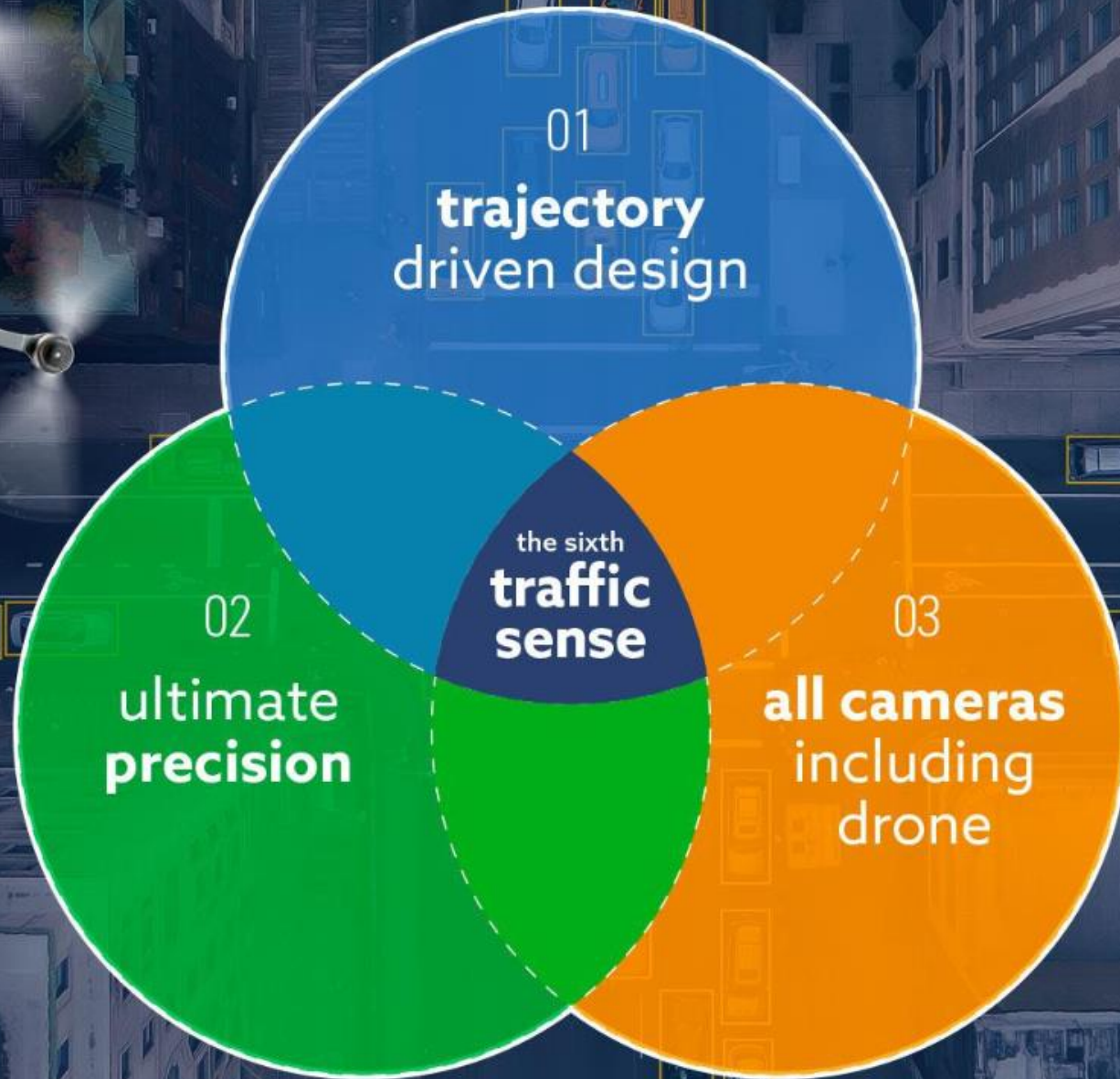
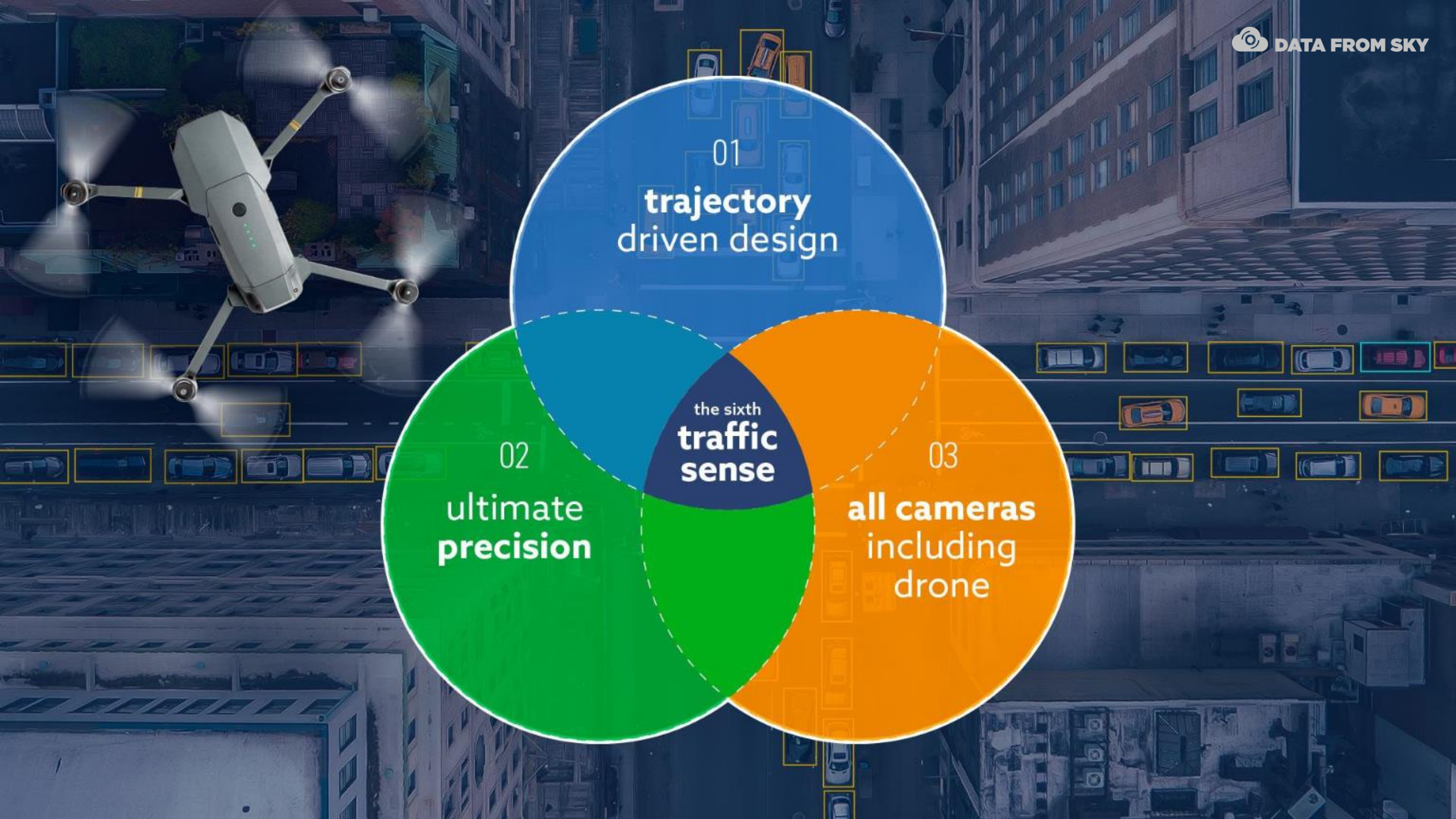


FLOW.
INSIGHTS
the sixth traffic sense

One traffic framework.
Any video source.
For all smart city tasks.

 **DATA FROM SKY**

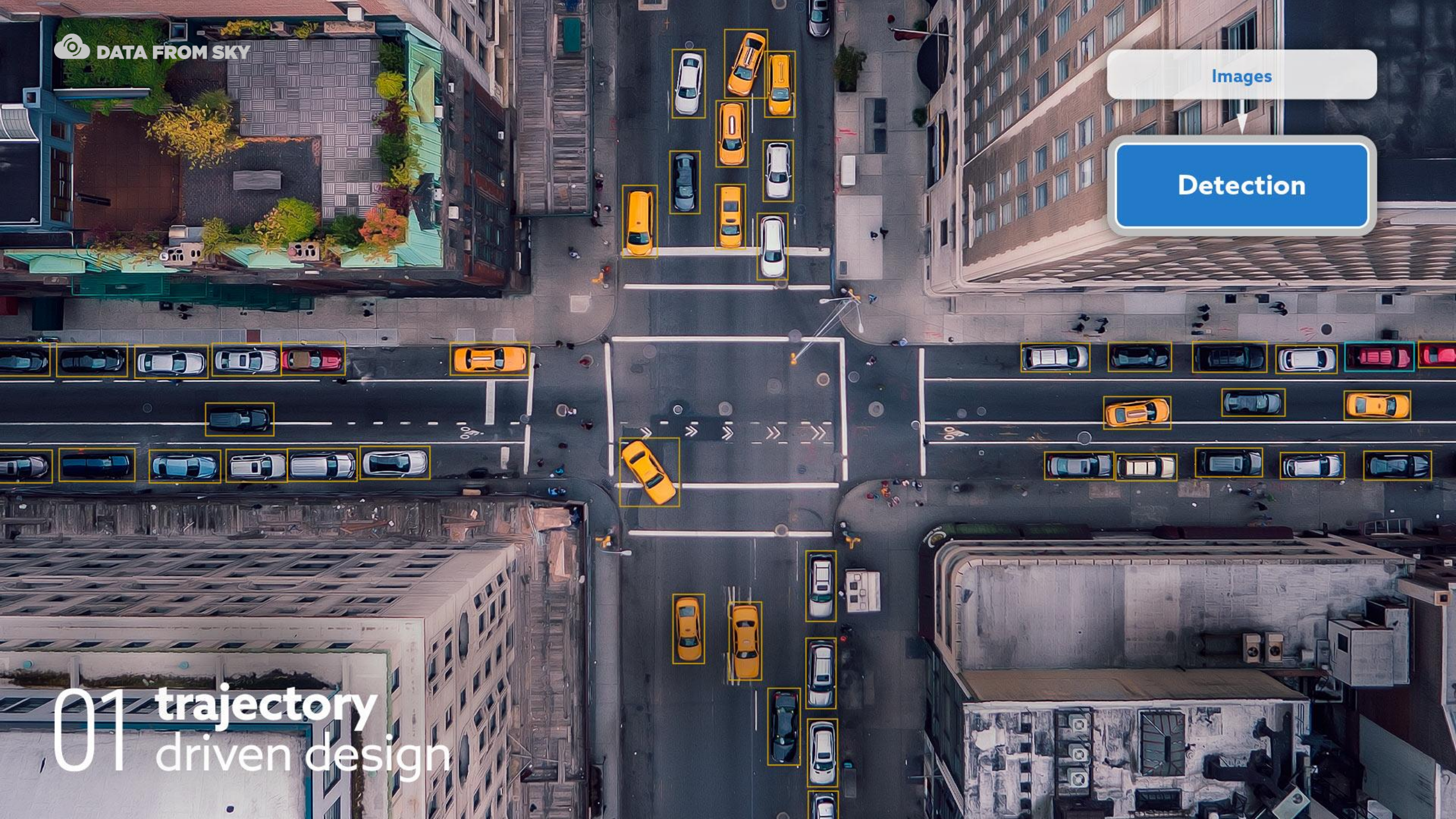


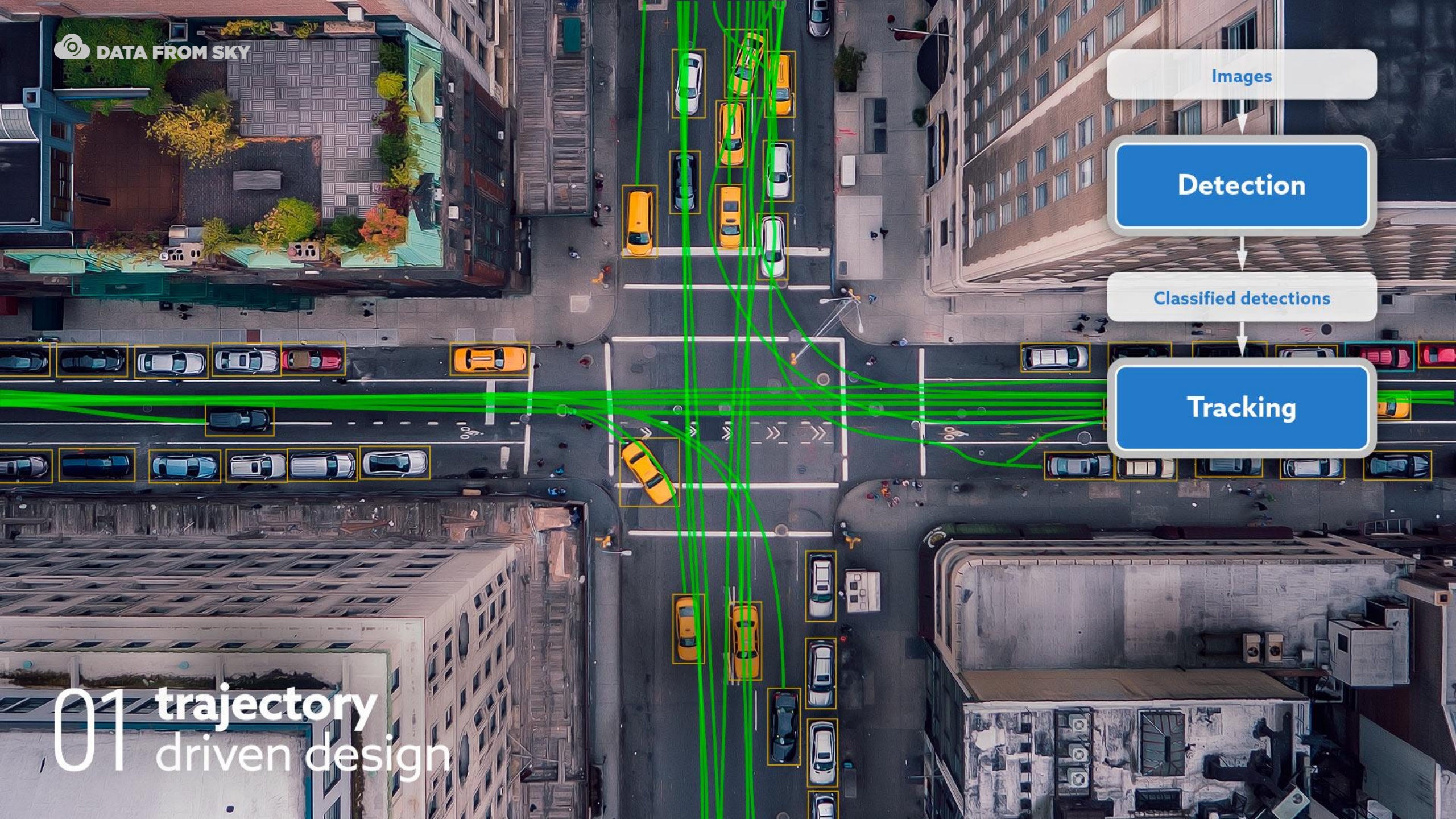


Images

Detection

01 trajectory driven design





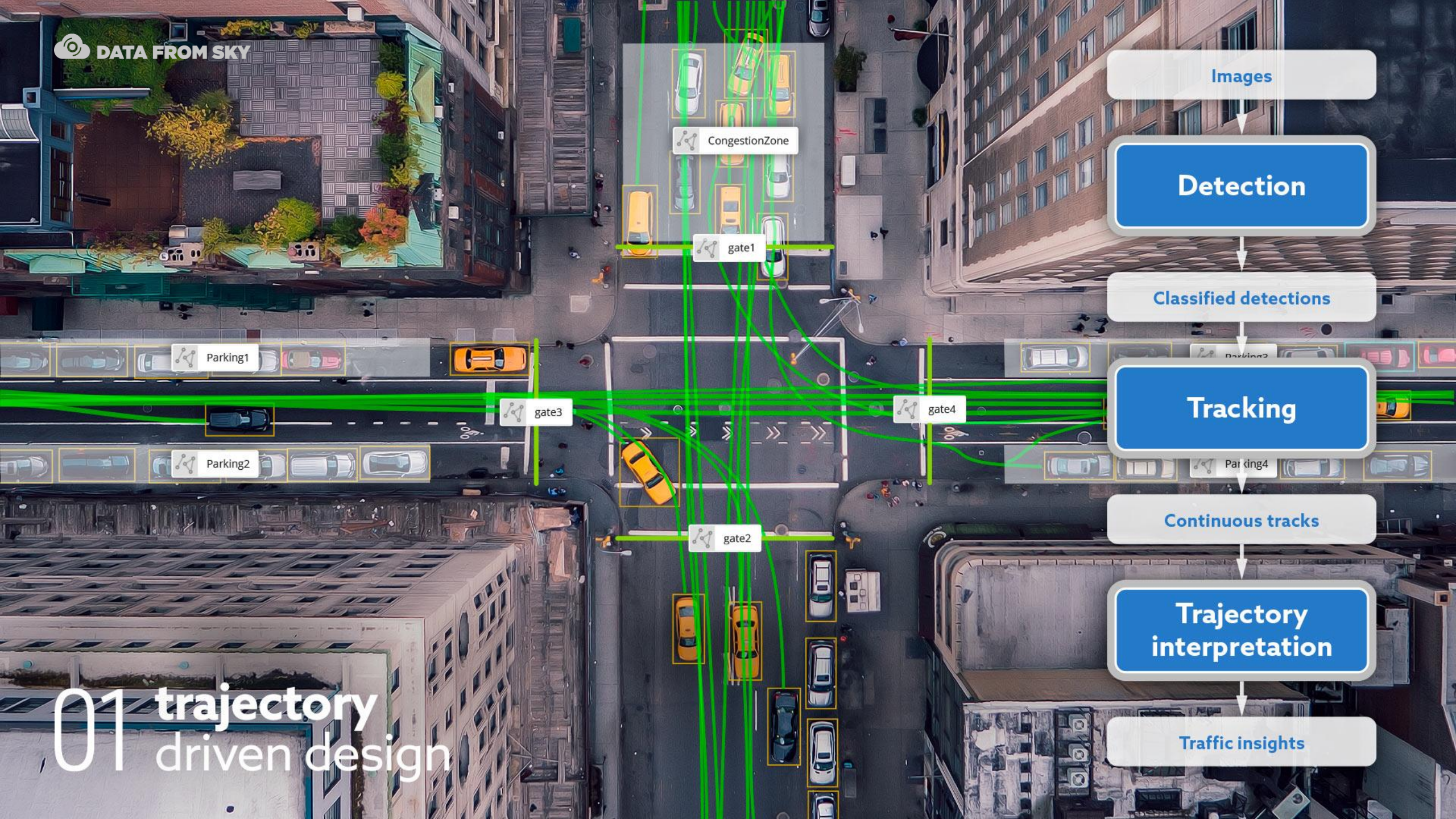
Images

Detection

Classified detections

Tracking

01 trajectory driven design



Images

Detection

Classified detections

Tracking

Continuous tracks

Trajectory interpretation

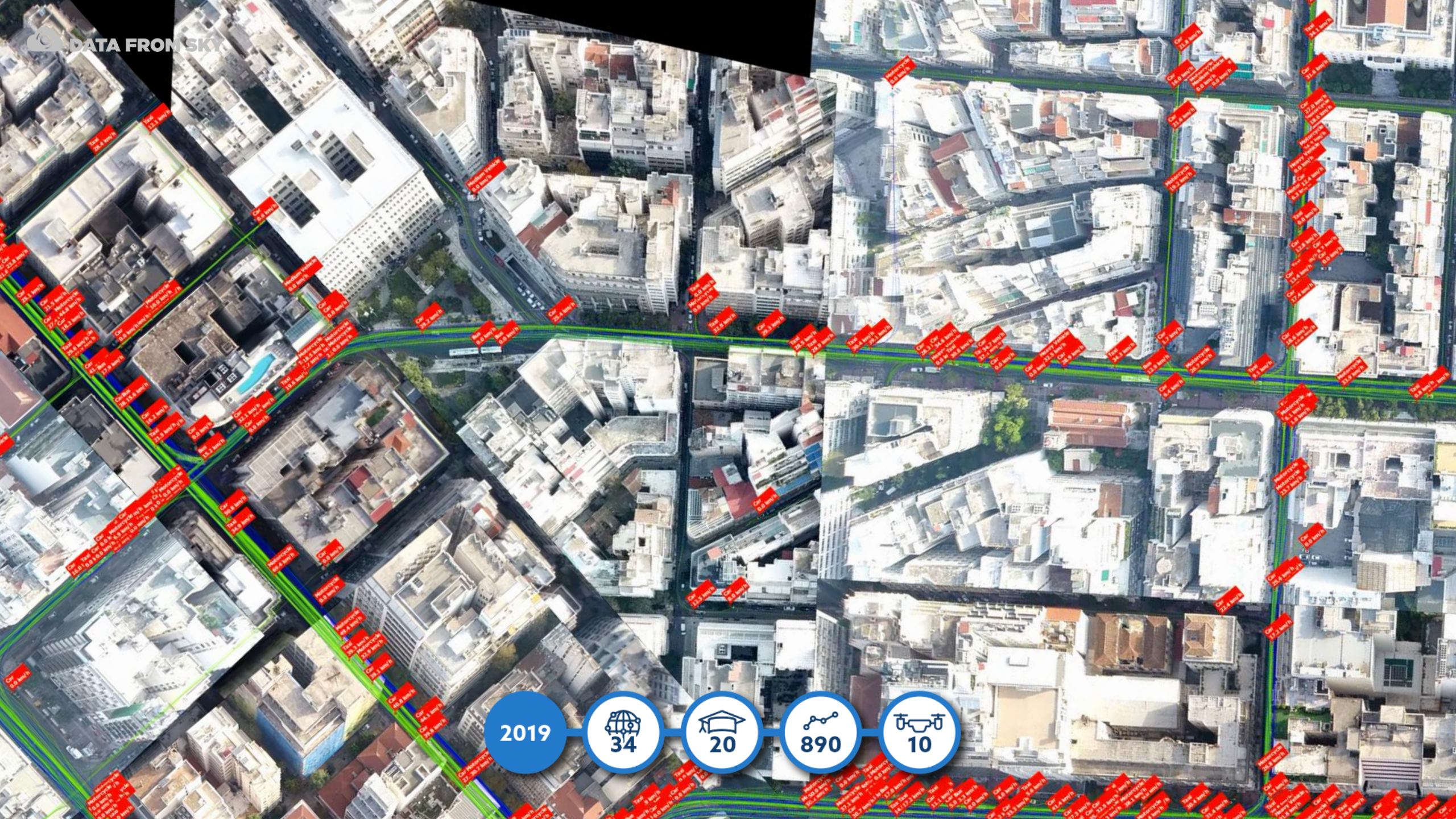
Traffic insights

01 trajectory driven design



7.9 m





2019

- 34 (Icon: Globe)
- 20 (Icon: Graduation cap)
- 890 (Icon: Network diagram)
- 10 (Icon: Motorcycle)

Comprehensive analysis from all video sources

- Drones
- Panoramic cameras
- Standard cameras / CCTV

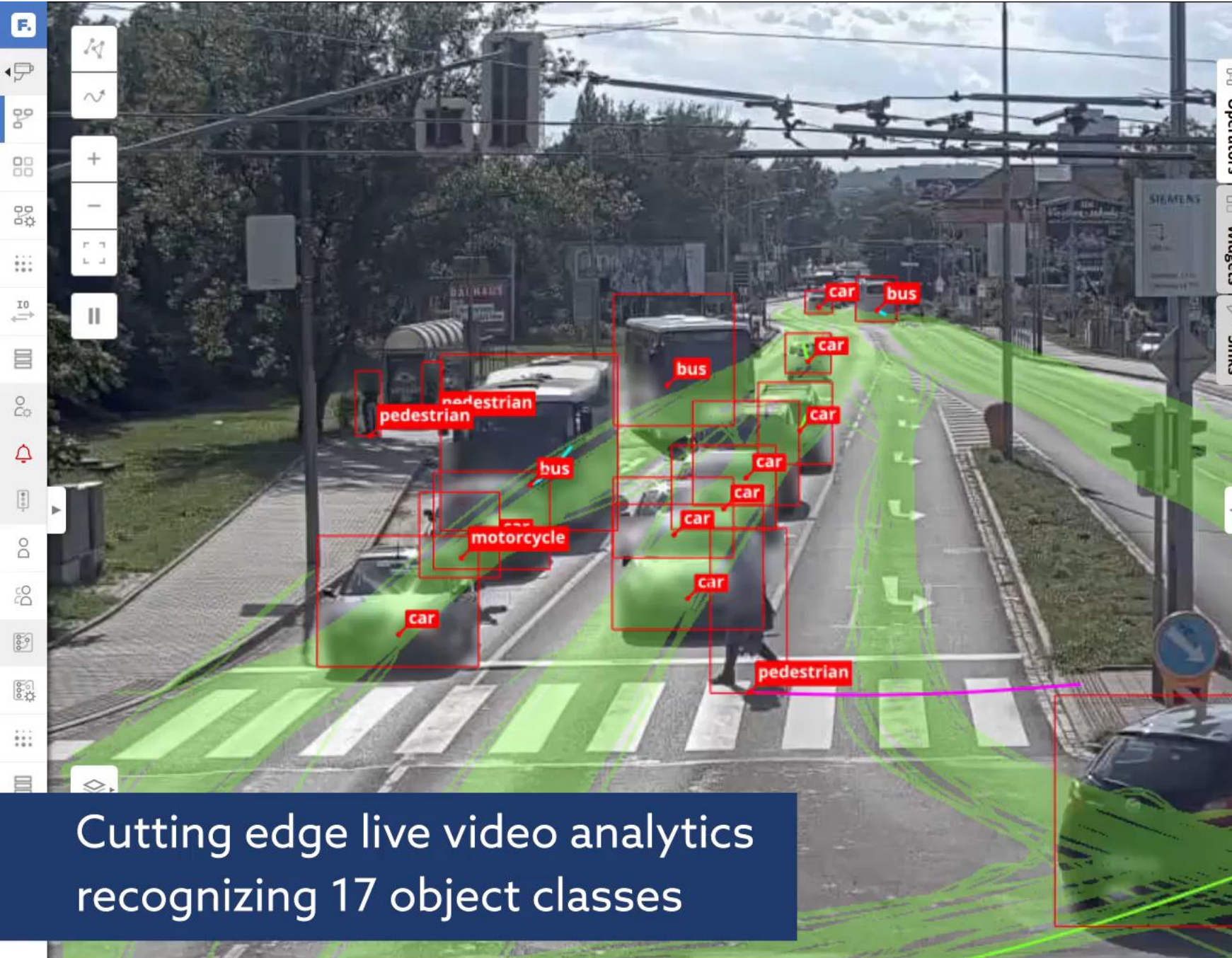
Bus
32 Km/h

Car
68 Km/h

Van
72 Km/h

03 all cameras





Cutting edge live video analytics recognizing 17 object classes

Programming elements

Motion filters

- Speed
- Acceleration
- Stationary duration
- Time of occurrence
- Duration of occurrence

Property filters

- License plate
- Color
- Category

Group operators

- Level of service
- Gap
- Near miss

Set operators

- Union
- Intersection
- Complement

Control operators

- Volume

Running

6844 cached trajectories since 2023-06-29 07:21:53

FLOW product family intro:

EDGE



TrafficCamera



TrafficEmbedded

IN-HOUSE



TrafficEnterprise


FLOW.
INSIGHTS



Edge - NANO



Edge - Xavier AGX/XN



Centralized - AI server

Křižovatkový monitoring

Detekce jízdy v protisměru, chodec v křižovatce, near-miss, blokující vozidlo, jízda na červenou apod.

USA – video evidence 5s před a 5s po incidentu, komunikace s řadičem (stav semaforu)





PED



WW



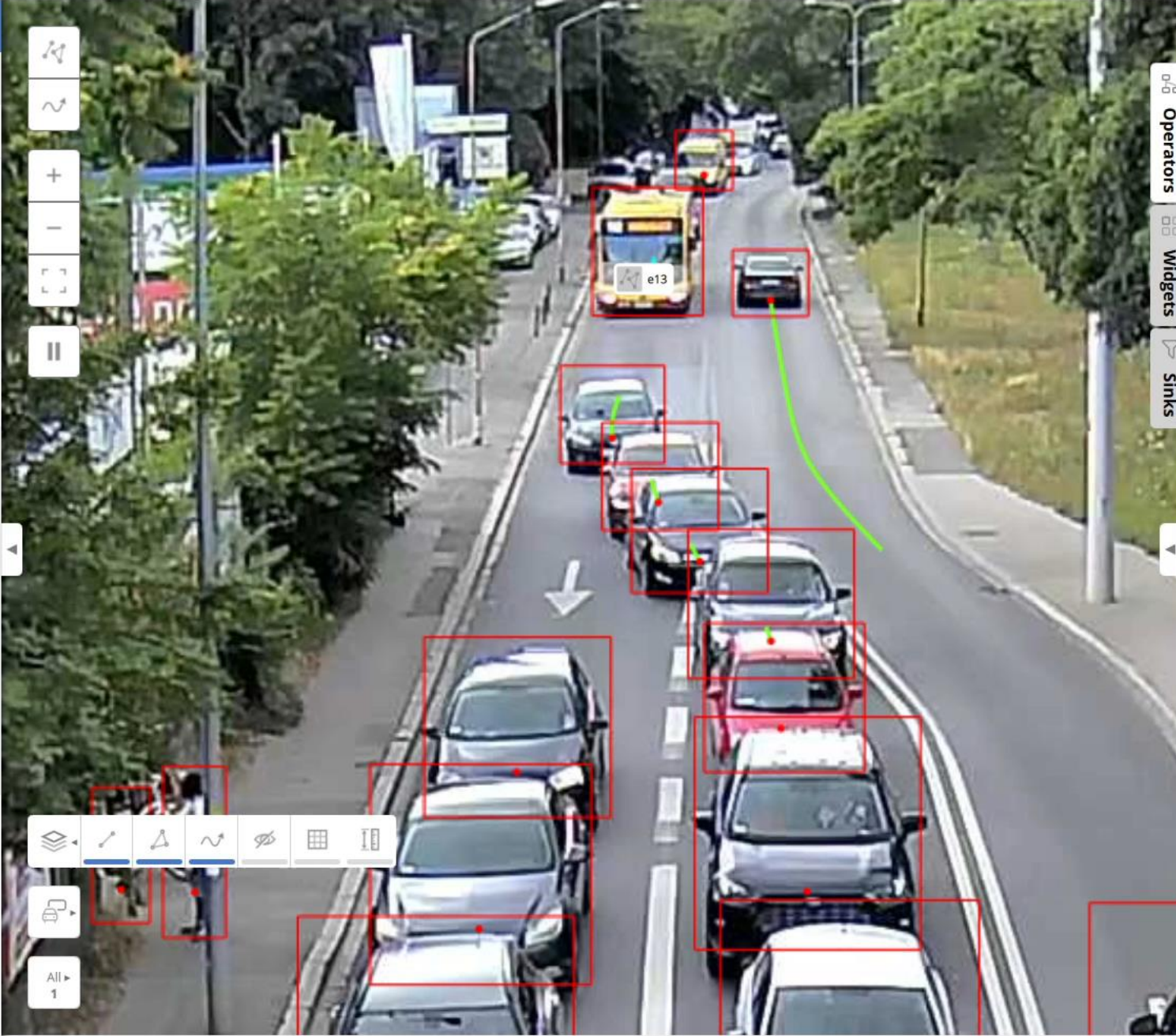
NM

FLOW INSIGHTS

- Analytics [13] USA
- Definition
- Dashboard
- Analytics settings
- Diagnostics
- Interfaces
- Storage
- User management
- Notifications
- Block
- Interfaces
- Statistics
- Updates
- Log out

FLOW INSIGHTS 1.17.0 ▶

Settings



Navigation icons: Home, Refresh, Add, Subtract, Zoom In, Zoom Out, Full Screen, Pause.

View and interaction icons: Layers, Select, Pan, Zoom, Erase, Grid, Info.

All 1

Operators

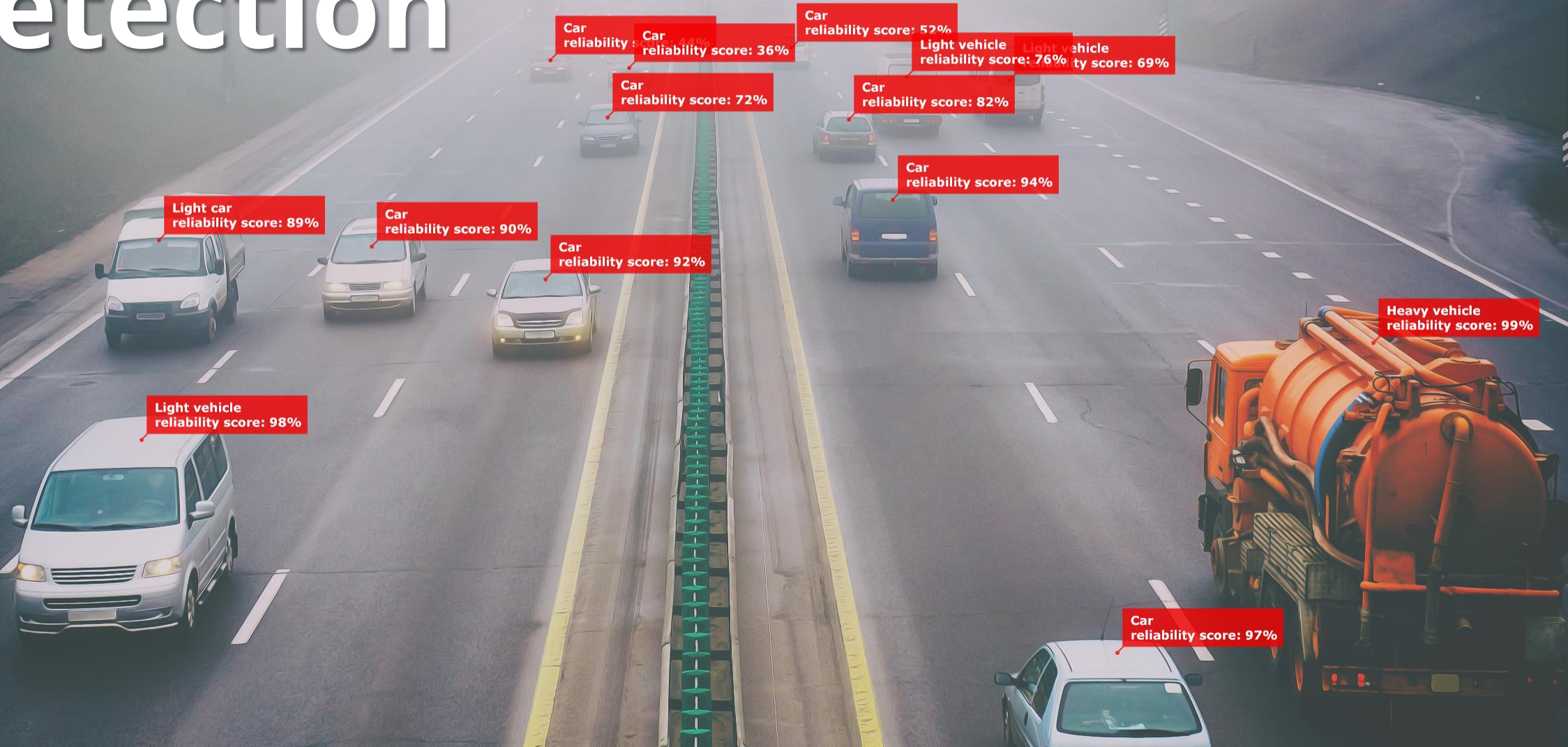
Widgets

Sinks

Emulation of inductive loops



Visibility Detection





Analyzing **900 camera streams**
in real-time for ensuring
tunnel safety

1× A30 – 40 camera streams



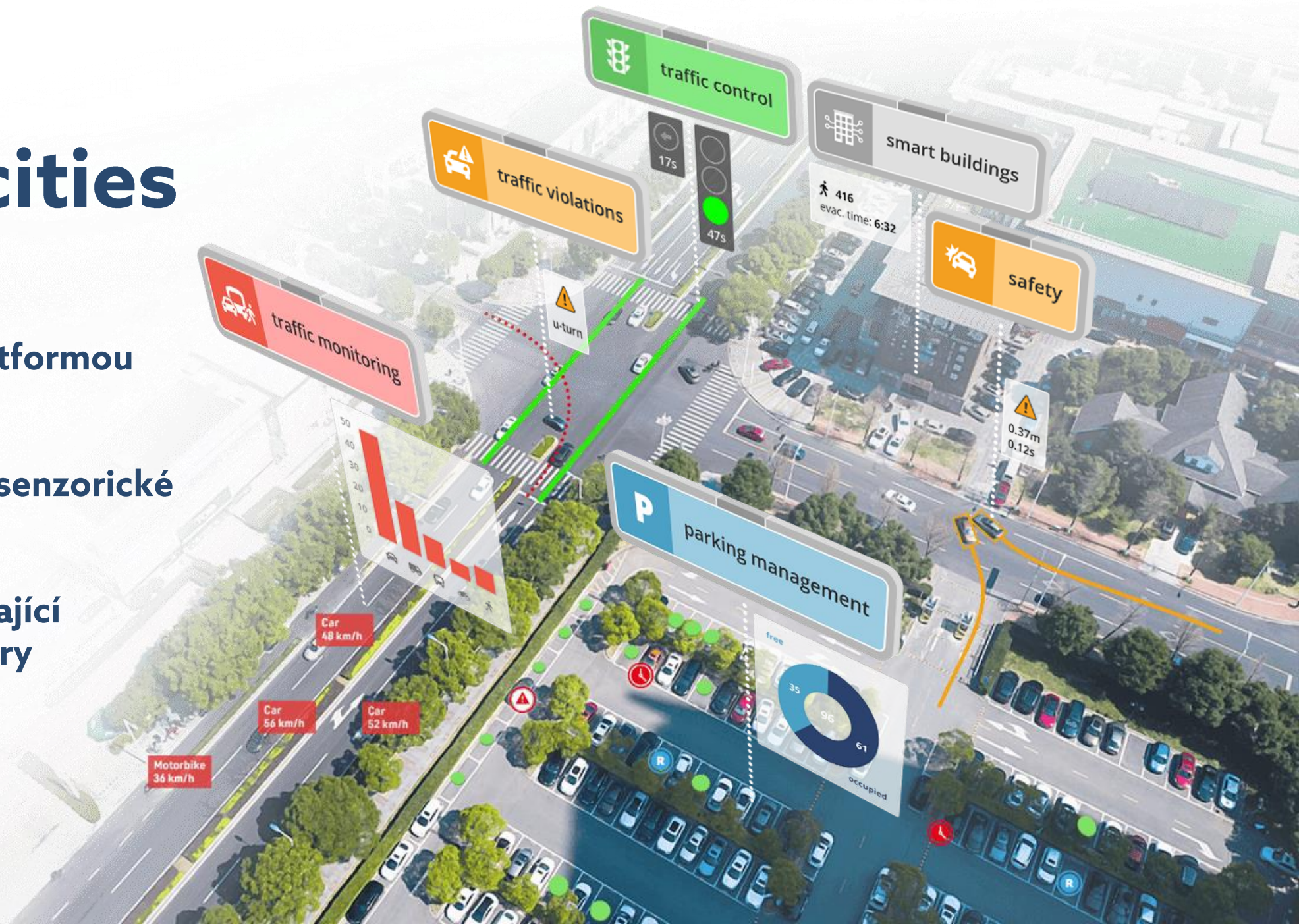
wrong way 2





Smart cities

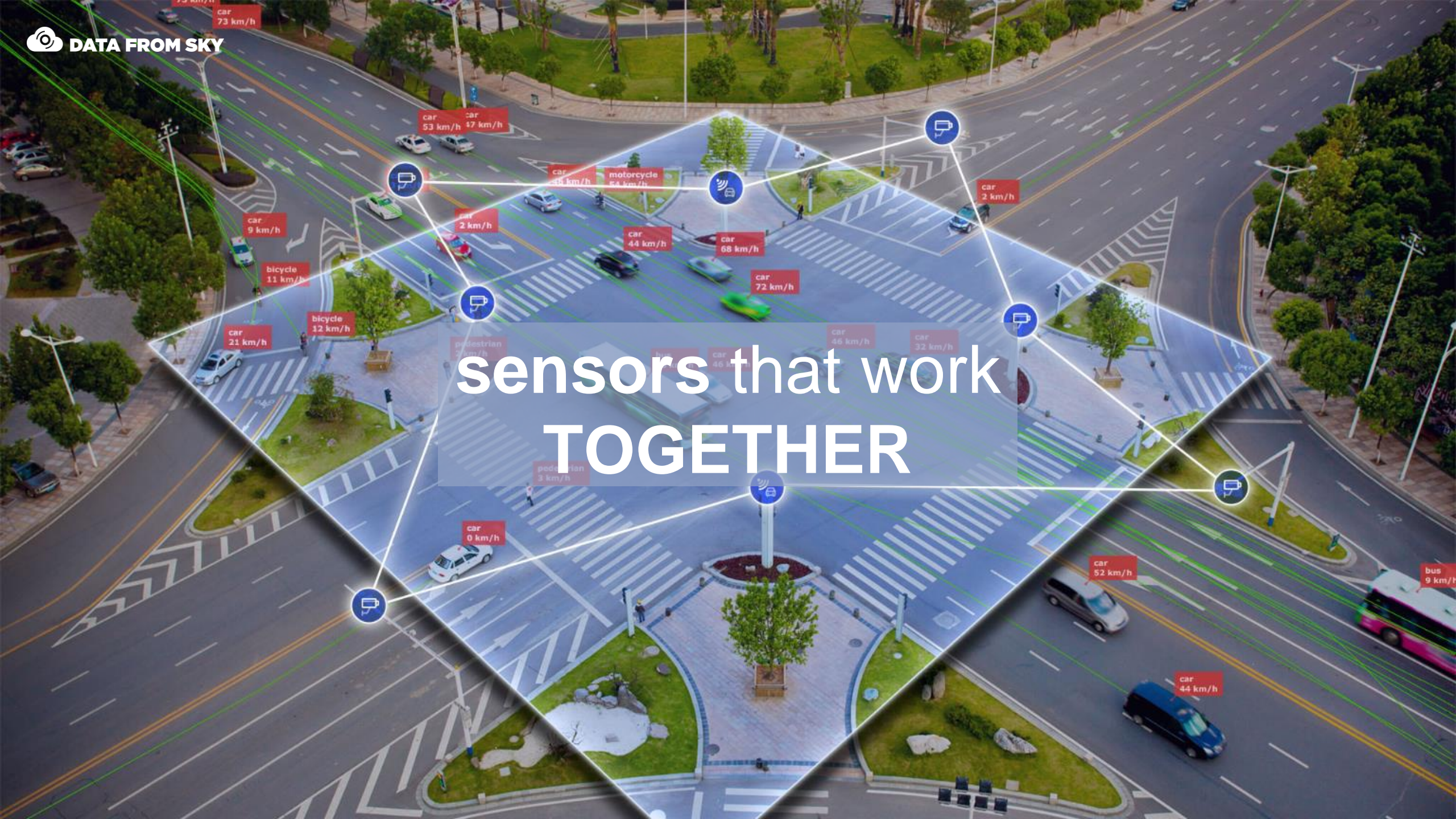
- **Propojení s datovou platformou města**
- **Univerzální senzoričné řešení**
- **Využití stávající infrastruktury**



Better the FLOW, Better the traffic

continues improvements driven by real applications

sensors that work TOGETHER



car 73 km/h

car 53 km/h car 47 km/h

car 45 km/h motorcycle 54 km/h

car 2 km/h

car 9 km/h

car 2 km/h

car 44 km/h

car 68 km/h

car 72 km/h

bicycle 11 km/h

bicycle 12 km/h

car 21 km/h

pedestrian 2 km/h

car 46 km/h

car 32 km/h

pedestrian 3 km/h

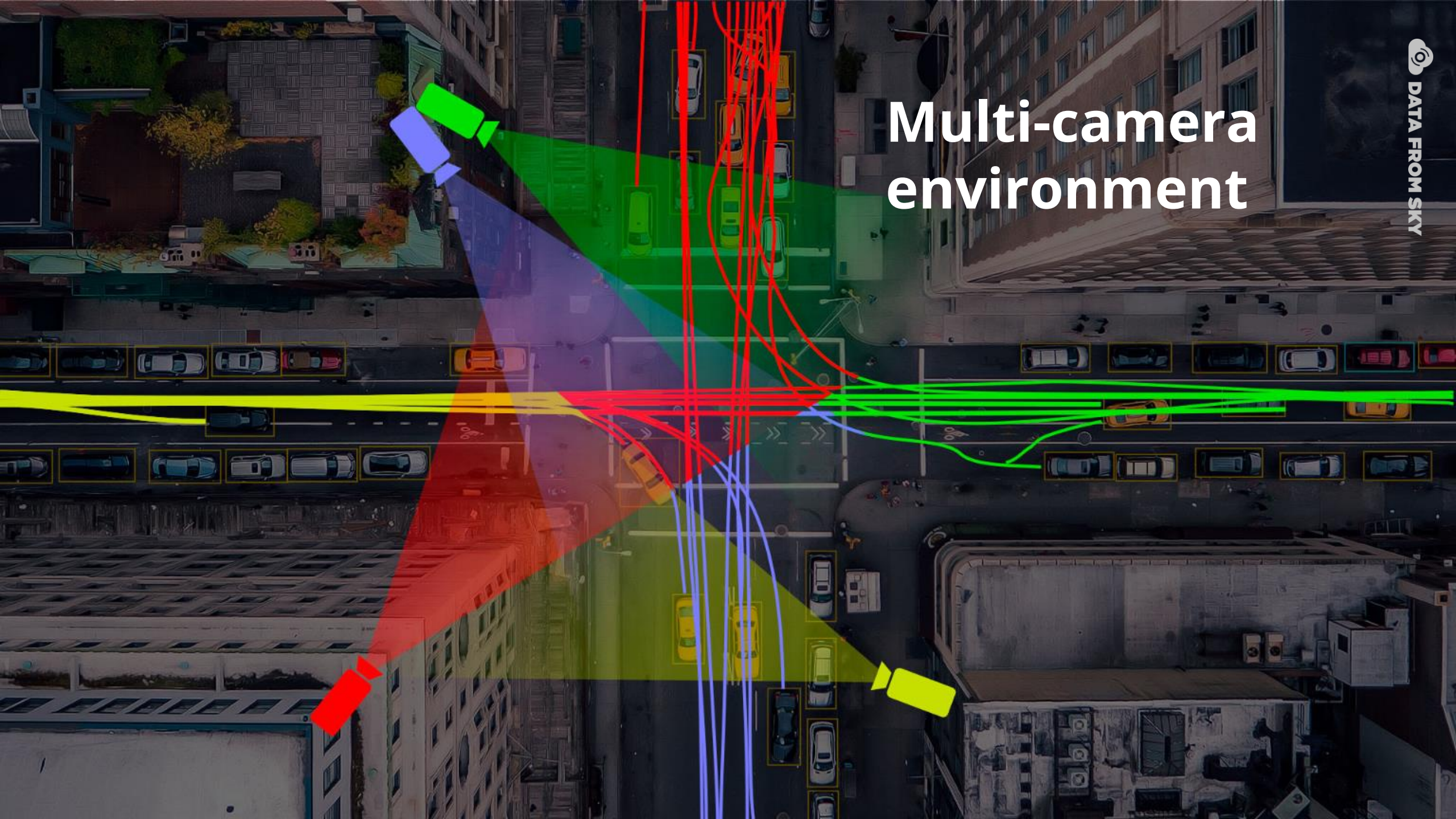
car 0 km/h

car 52 km/h

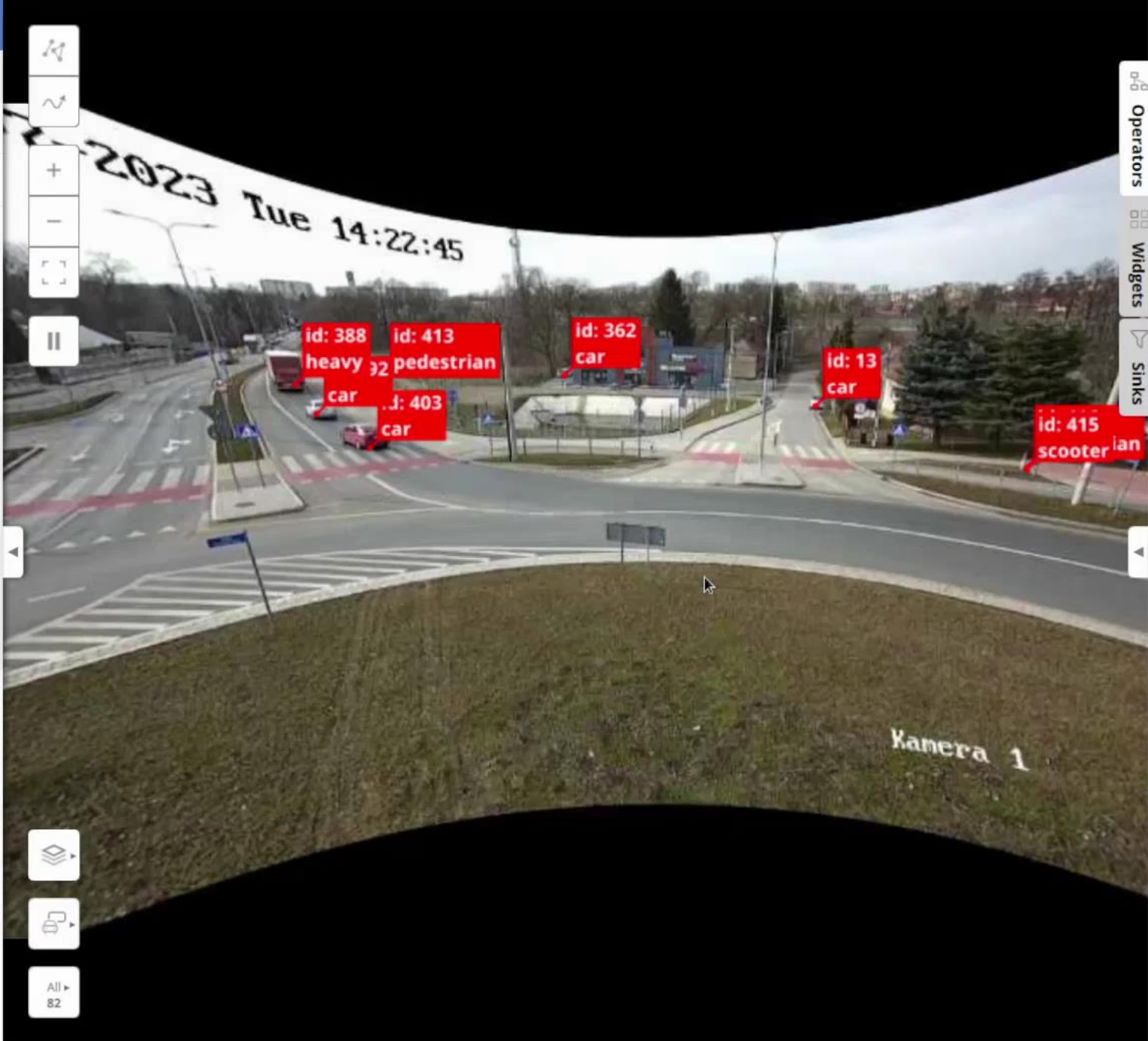
bus 9 km/h

car 44 km/h

Multi-camera environment



- Analytics [4] Camera 1
- Definition
- Dashboard
- Analytics settings
- Diagnostics
- Interfaces
- Storage
- User management
- Notifications
- Block
- Updates
- Log out



Navigation controls including zoom in (+), zoom out (-), full screen, and pause (||) buttons.

- Operators
- Widgets
- Sinks

Programming elements

- Motion filters**
 - Speed
 - Acceleration
 - Stationary duration
 - Time of occurrence
 - Duration of occurrence
- Property filters**
 - License plate
 - Color
 - Category
- Group operators**
 - Level of service
 - Gap
- Set operators**
 - Union
 - Intersection
 - Complement
- Control operators**
 - Volume

Volume control slider and buttons.

TrafficDrone



DATA FROM SKY



Product: **TrafficDrone unit**

NCAGE number: 7591G
Powered by ORIN AGX 32GB



FLOW.
INSIGHTS

the sixth traffic sense

TrafficDrone

Headway monitoring

with Central Bohemian
police directorate



MAKING THE ROAD TRAFFIC EMISSIONS VISIBLE

Traffic
Cars / last hour: 930
Heavy vehicles / last hour: 61

Emissions produced
last hour: **75kg CO₂** and **81g NO_x**
last month: **2381kg CO₂** and **2560g NO_x**

pedestrian

car

pedestrian

bicycle

pedestrian

pedestrian

pedestrian

car

pedestrian

car

van

car

car

car

car

car

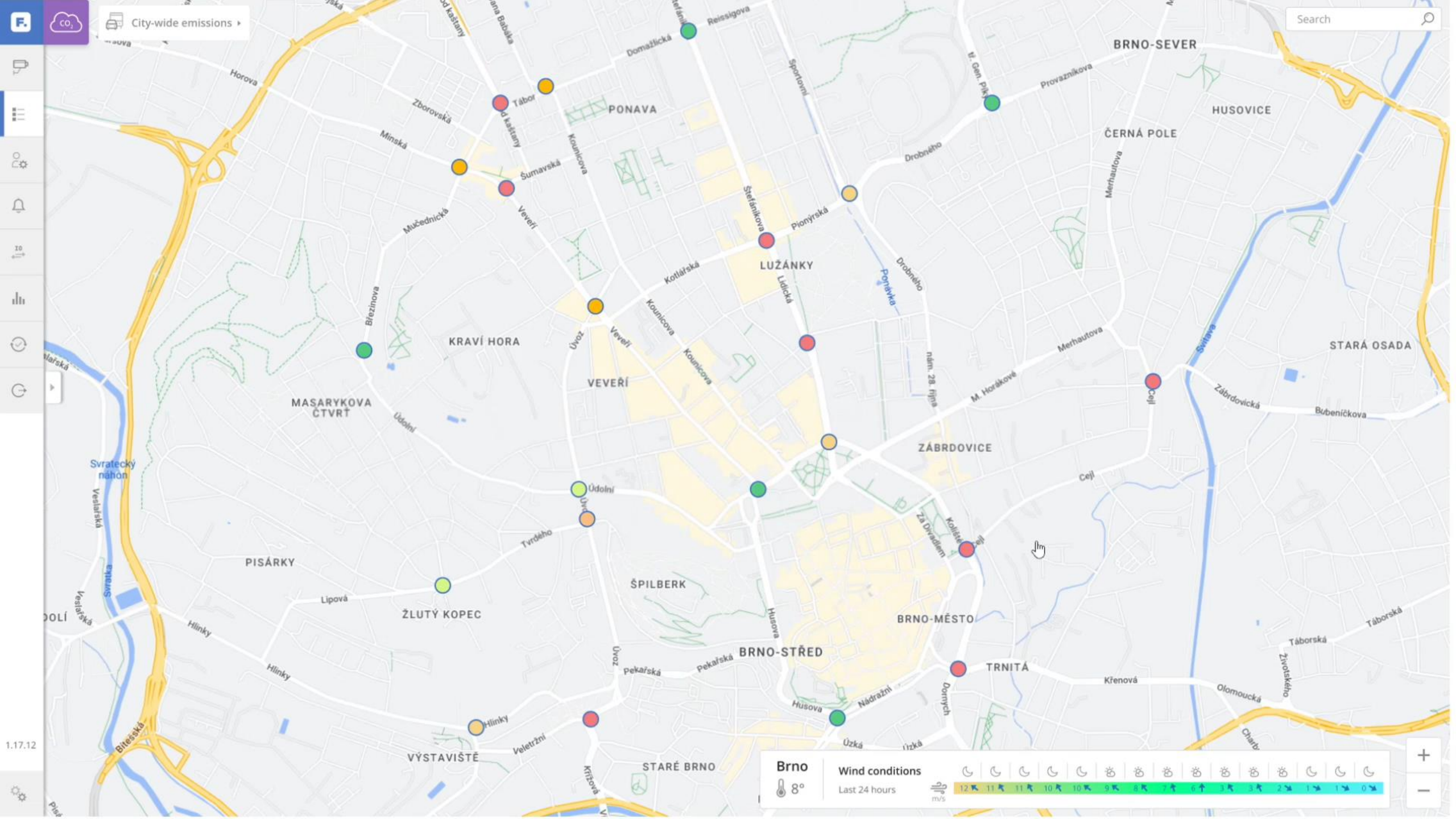
car

van

T A

Č R

This project is co-financed from the state budget by the Technology Agency of the Czech Republic under the Doprava 2020+ programme.



Search

City-wide emissions

Brno

8°

Wind conditions

Last 24 hours



1.17.12



One view, unlimited sensors.

FLOW.

INSIGHTS

color detection

road pirate
wrong way detection

van
category detection

16 min 32 s stationary
blocking road detection



David Herman
www.datafromsky.com