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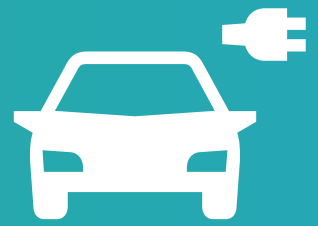
Intelligent Traffic Systems in Asia Pacific

Fred Kalt, Managing Director of ITS APAC, Siemens Mobility

Four trends on our roads will boost “the next Mobility revolution” in and between cities

Today				
	Owned	Stand-alone	Combustion	Driver
Tomorrow				
	Shared	Connected	Electric	Autonomous

Our vision – cities will manage the complete mobility ecosystem to achieve its throughput, pollution, safety and energy targets

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Cities will manage and inspire…

Centrally managed traffic
towards city strategy and KPIs

Point-to-point connectivity
seamless across all modes

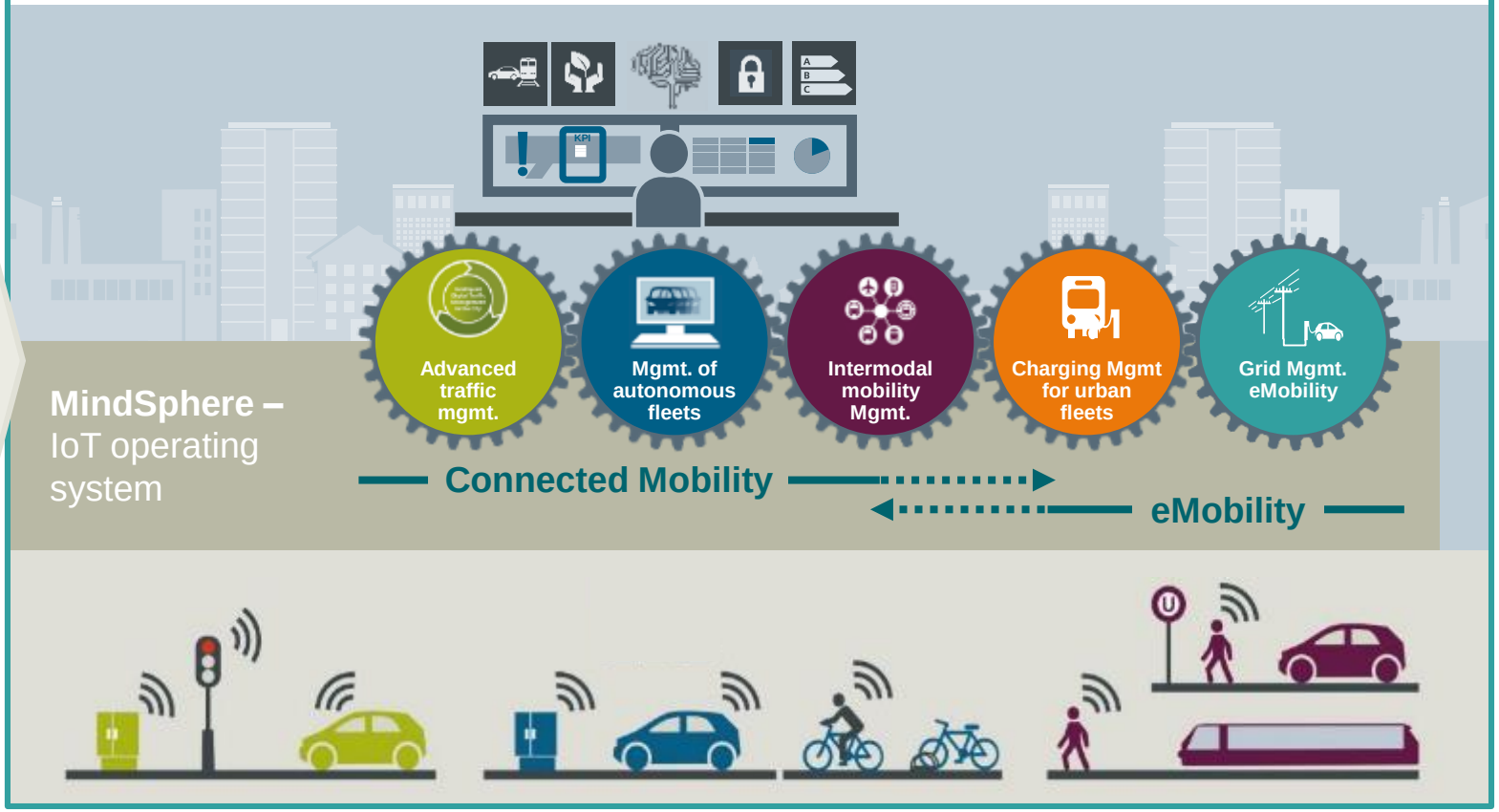
Demand responsive
with flexible routes and schedules

Fully automated SDVs only
differentiated by user groups and capacity

Mainly shared fleets,
as a service and open to various fleet operators

All electric
with 100% renewable power

Mobility Operating System - mOS



For an intersection this vision could mean the intelligent integration of various systems into one „smart crossing“

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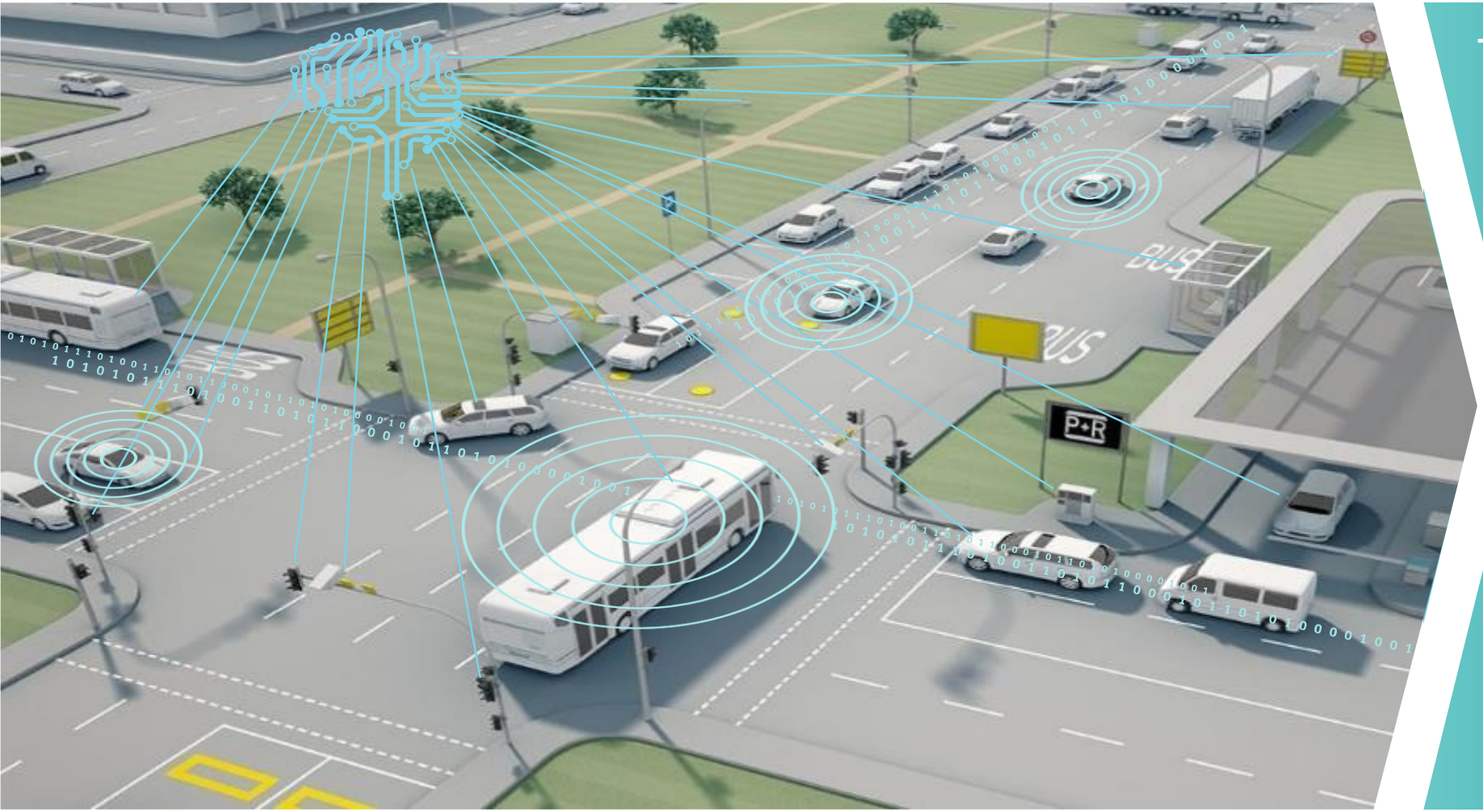

The “smart crossing” brings together

- Traffic lights and controller
- Detection systems
- Variable message signs
- Dynamic prioritization for different vehicles such as public transport, bikes and emergency vehicles
- Dynamic green wave
- Adaptive street lighting
- In-vehicle information for drivers (e.g. Time-to-Green)

→ Providing full connectivity, proactive control and maximum IT security at the same time

Activities in APAC

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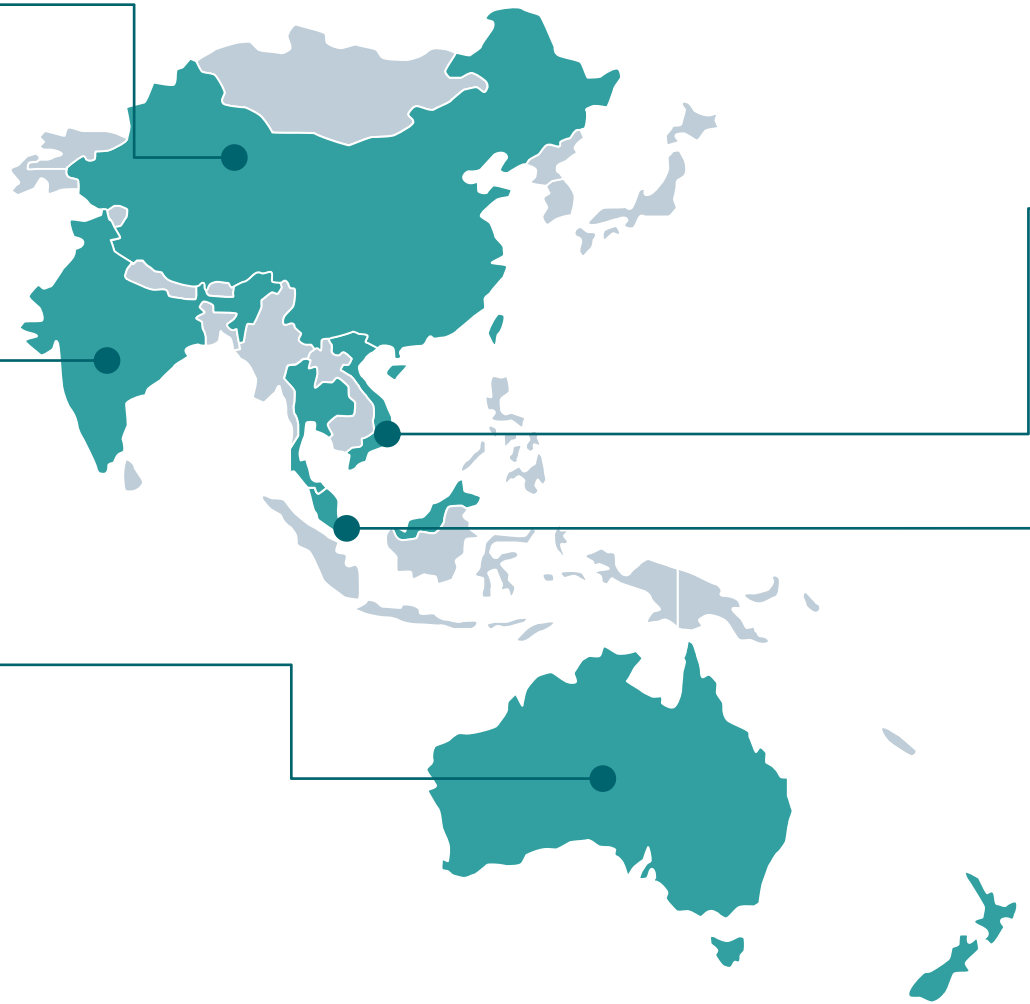
China
- Zhuhai: traffic management system incl. UTC, real-time data, traveler information system, LRT prioritization
- Suzhou: V2X test field

India
- Video-analytics-based vehicle counting

Australia & New Zealand
- SCATS certification for sX controller
- Rail2X trial for approaching rail crossing warning



Vietnam
- Hanoi: running PoC for video-analytic based traffic management

Singapore
- Development for tunnel management for North South Corridor
- Research collaboration agreement with LTA and A-STAR for CRUISE

PoC: Hanoi's growing population requires investments in traffic infrastructure to avoid worsening of traffic congestion

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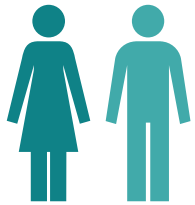


Population

Hanoi has ~8 mio. Citizens, growing up to **9.2 million by 2030**

Traffic volume

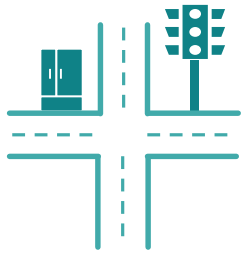
5.8 mio. vehicles, thereof **90% motorcycles,** increase of cars due to **restriction of motorcycles** from 2030

Traffic Congestion

Annual cost of congestion are estimated to be 1.2 billion USD, loss of more than **1 million working hours** per year[1]

Air pollution

Hanoi's air pollution index is 4x higher than recommended by the **World Health Organization[2]**



Infrastructure

Only 800 out of 3,300 inter-sections are equipped with **traffic signals[3]**

1 Vietnam Investment Review; 2 VN Express; 3 DoT Hanoi

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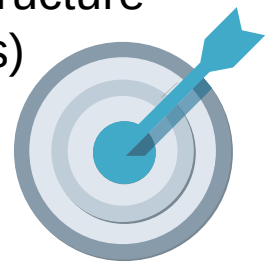
Objectives of Project VAST

(Video Analytics for Smart Traffic)

- **Detecting vehicles in non-lane-based traffic** by applying AI-based video analytics on video streams from existing CCTV
- **Optimizing the traffic flow & increasing the intersections' throughput** by simulation and feeding detection data into a cloud-based traffic management system, managing the on-site sX controller
- **Reducing electricity consumption** by installing state-of-the-art road infrastructure (1 Watt sX controller and traffic lights)



PoC: AI-Enabled Vehicle Detection & Classification

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PoC: Technical architecture with CCTV via Scala

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In the Cloud

GPU

Transfer of video statistics to traffic dashboard

sends output data, such as number and type of vehicle, etc.

Traffic Dashboard

ASP Traffic Mgmt

TASS-traffic actuation signal plan selection

On Site

Transfer of video statistics to traffic dashboard

CCTV

Monitors and handles signal programs of sX controller

send status

sX Controller

controls

Traffic & Pedestrian Lights

ASP: Application Service Provisioning

PoC: Traffic Statistics Dashboard

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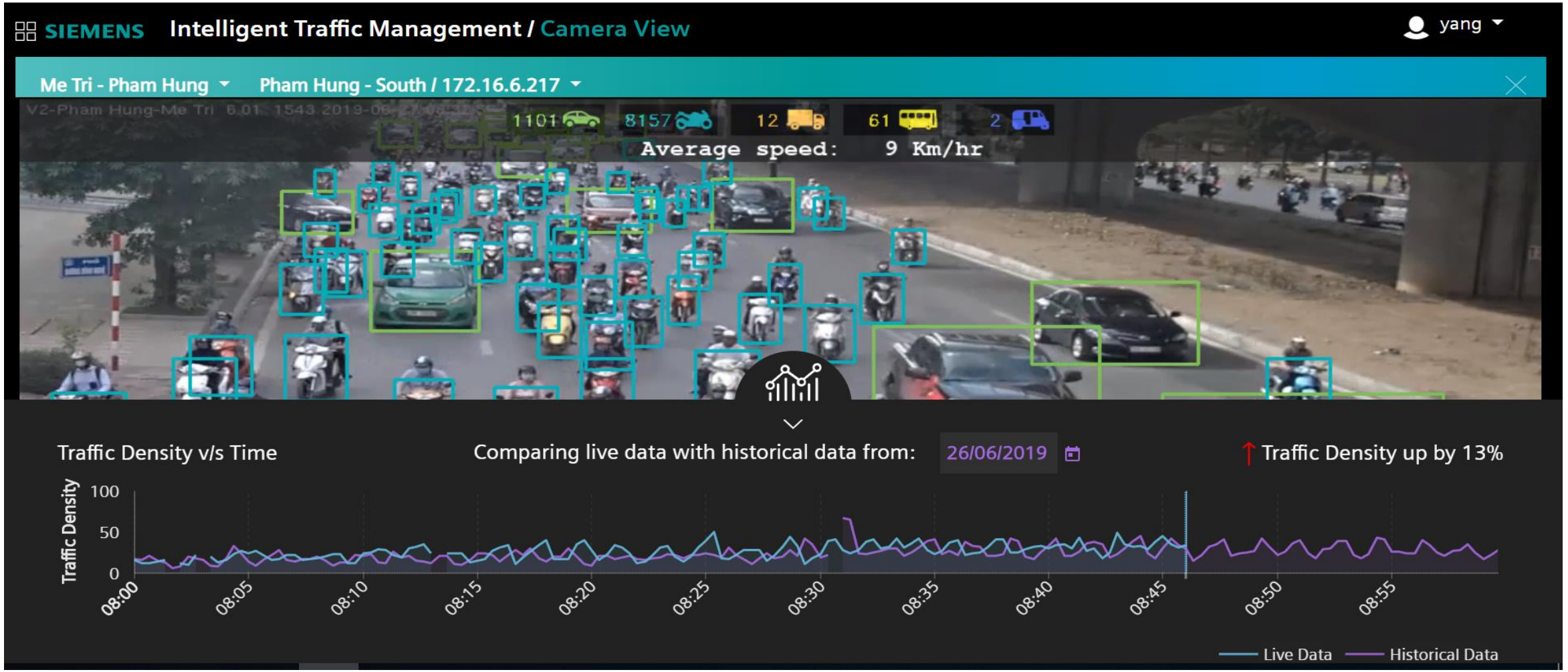

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Results of the PoC – in brief

>15% average increase
of traffic throughput at the intersection

Ease of traffic density
towards the city centre

30-50% energy savings
through the deployment of 1 Watt technology

Roll-out of the solution throughout the city will multiply these benefits


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Thank You