

# EVP, Products & Strategy Strategy Session - MaaS

Erez Dagan



# Mobility Market – Inefficiencies & opportunity

## The Mobility Supply challenge

Serve individual A-to-B-at-T demand instances, while minimizing **latencies, costs** and **collateral/societal burden**.

### Existing solutions

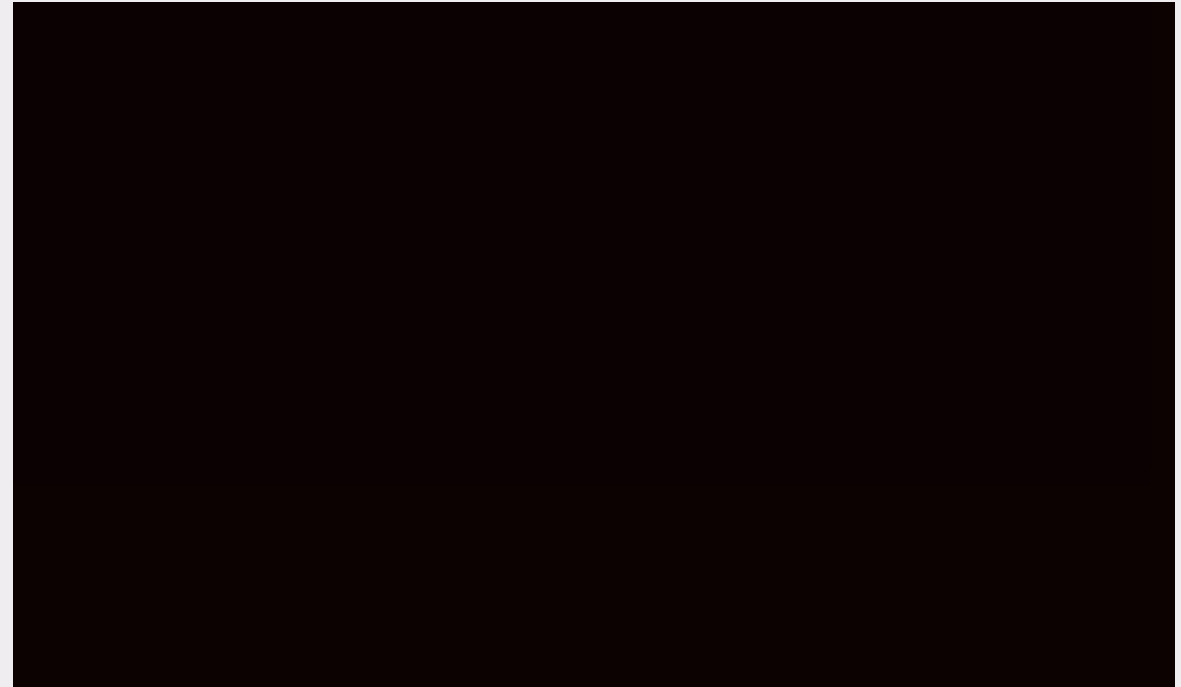
- Vehicle ownership
- Driver on demand: Taxi
- Driver on demand : Hailing
- Public transport

### Economical Inefficiencies

- 94% Idle time, parking space
- Dispatch inefficiencies, DPP
- fleet-level inefficiencies, DPP
- Stiff route, size & time, ETA

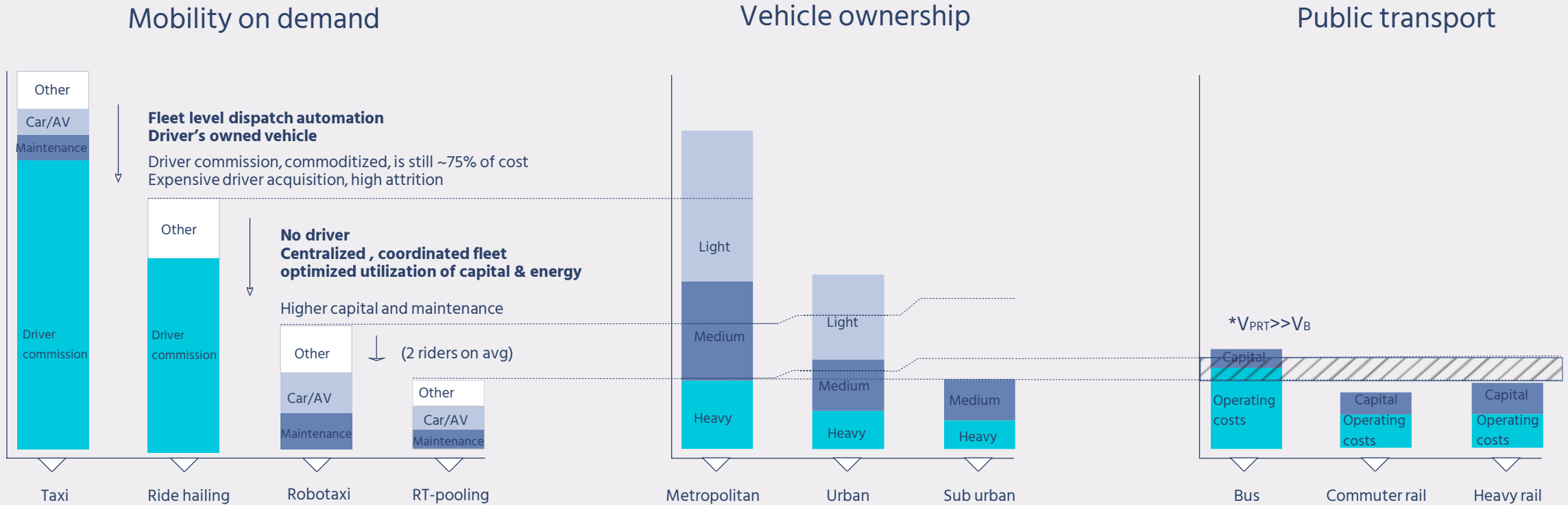
### Societal burden

- Reduced Traffic flow & street space
- Mobility affordability and accessibility is limited
- Inefficient energy use
- Noise & air pollution



# Mobility Market – Inefficiencies & opportunity

Exemplified by cost/mile, relative units

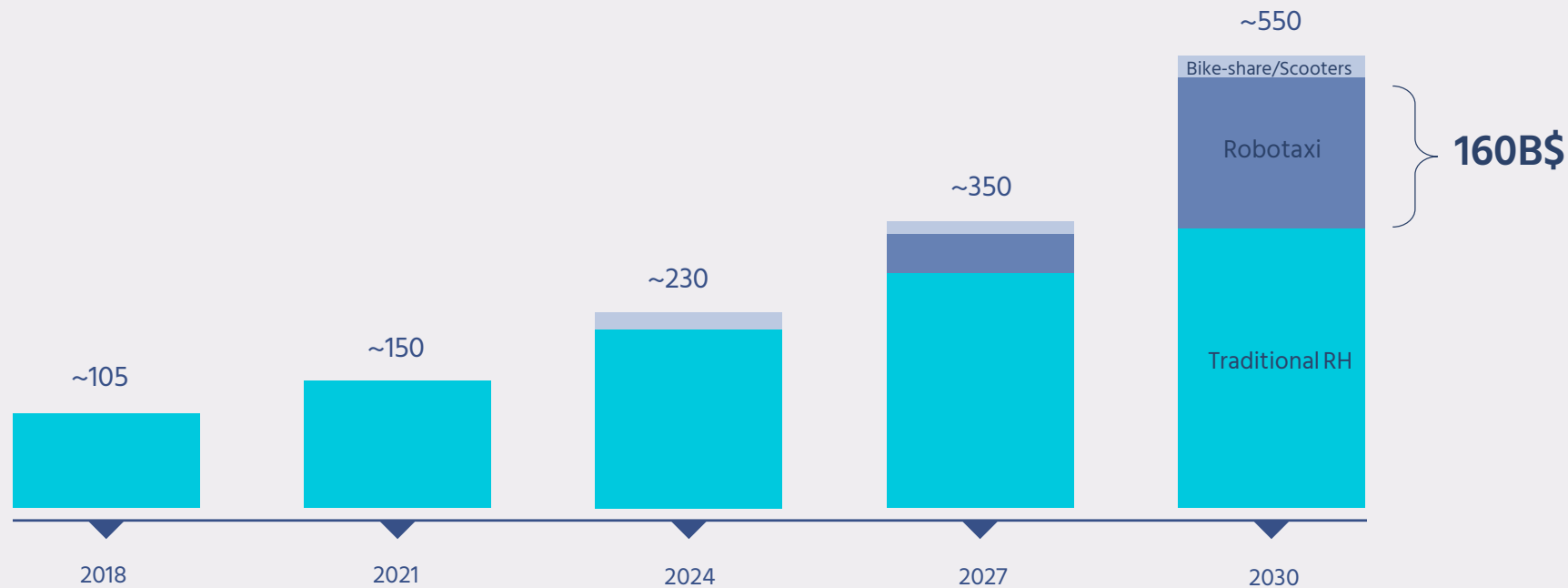


~1% of US mobility miles

# Mobility Market – Inefficiencies & opportunity

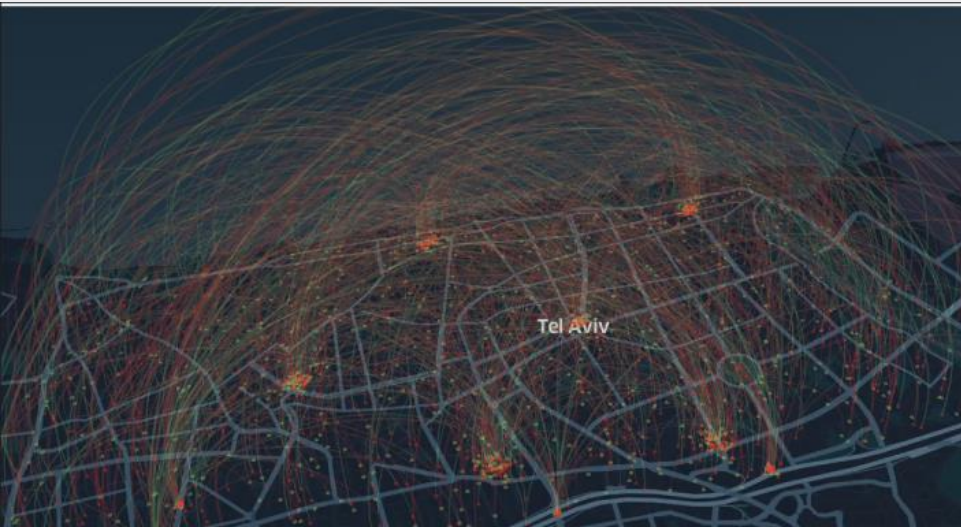
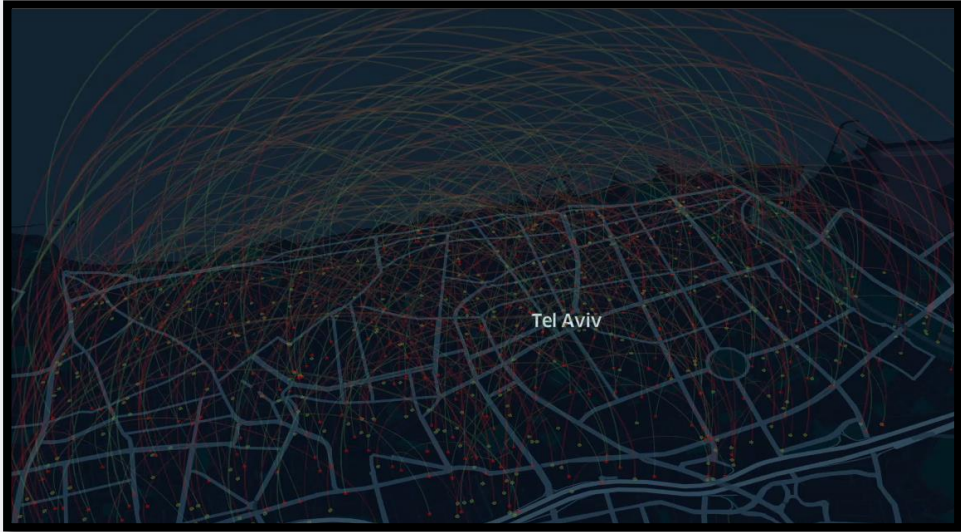
## TAM for MaaS (B of \$)

RT MaaS TAM is expected to reach \$160B at 2030, by conservative estimates representing a 30% take of MOD market



- ~1600 cities by 2030
- # of trips by city size
- Avg annual spend 160-240\$
- RT CAGR ~50%

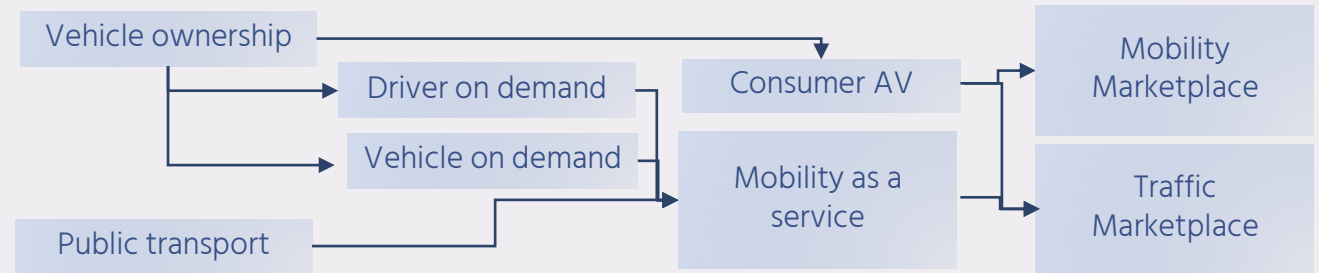
# The future value of Consumer-Facing Mobility service



## Mobility : The next economical revolution to unfold

Transportation is a commonly unaccounted-for transaction cost.

Mobility and physical traffic are both shaping up as marketplaces for optimizing this inefficient behemoth economical factor.



Hence - Mobility demand-exposure & supply-management - will evolve to fuel a broad set of new transaction types and mobility products.

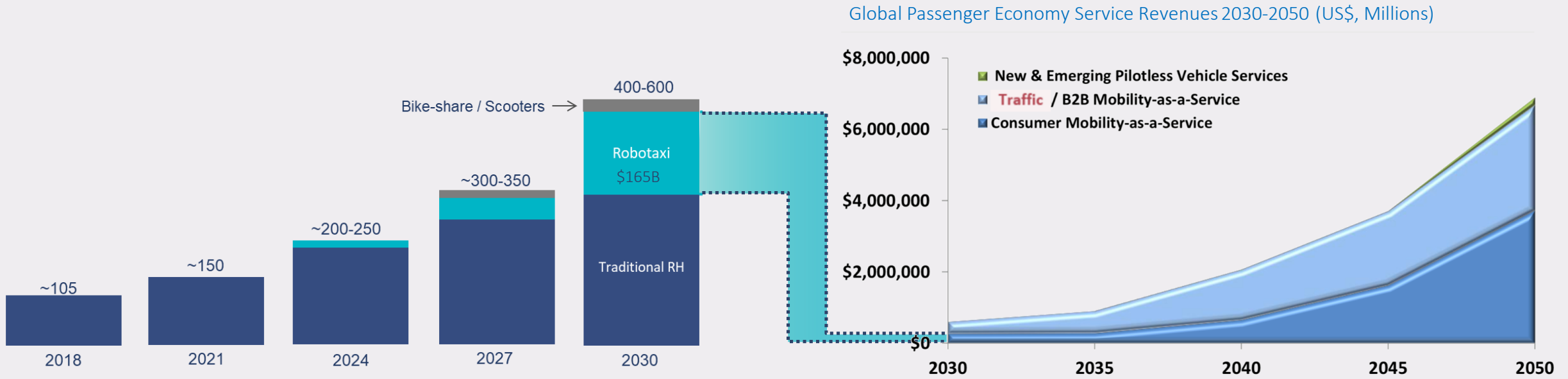
Peer-to-Peer AV

Inward/outward traffic bundles

City planning tool

# Passenger Economy expectations

While Robotaxi TAM expectation is \$160 billion by 2030 - The overall **passenger economy** – as high as \$7 trillion by 2050

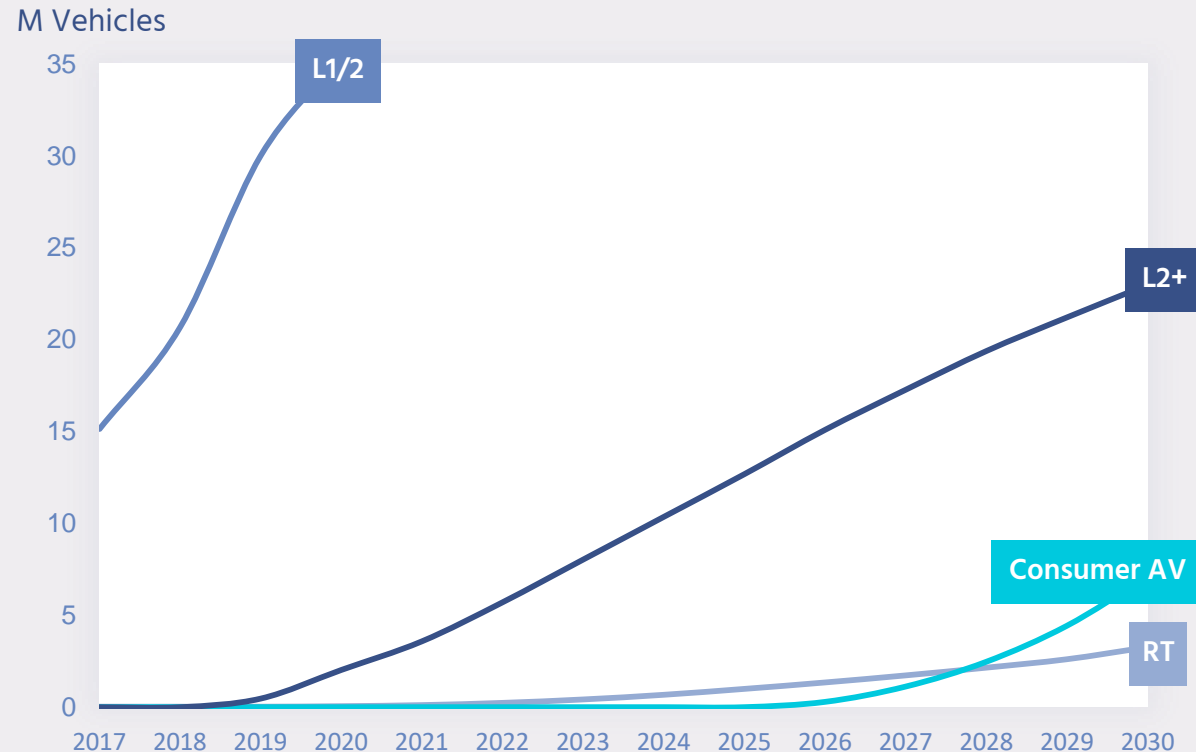


Source: Strategy Analytics

# MaaS : corridor to consumer vehicle automation

## Consumer autonomy

- The next market-wide automotive product.
- Self driving systems will constitute a sizeable portion of the vehicle value.



## MaaS : self- driving-system's first productization arena

ME/Intel MaaS proposition will forge our self-driving product towards its mass-market phase : consumer AV

Safety & Regulation

Geo expansion

Cost/Value optimization

## MaaS will govern self- driving productization pace

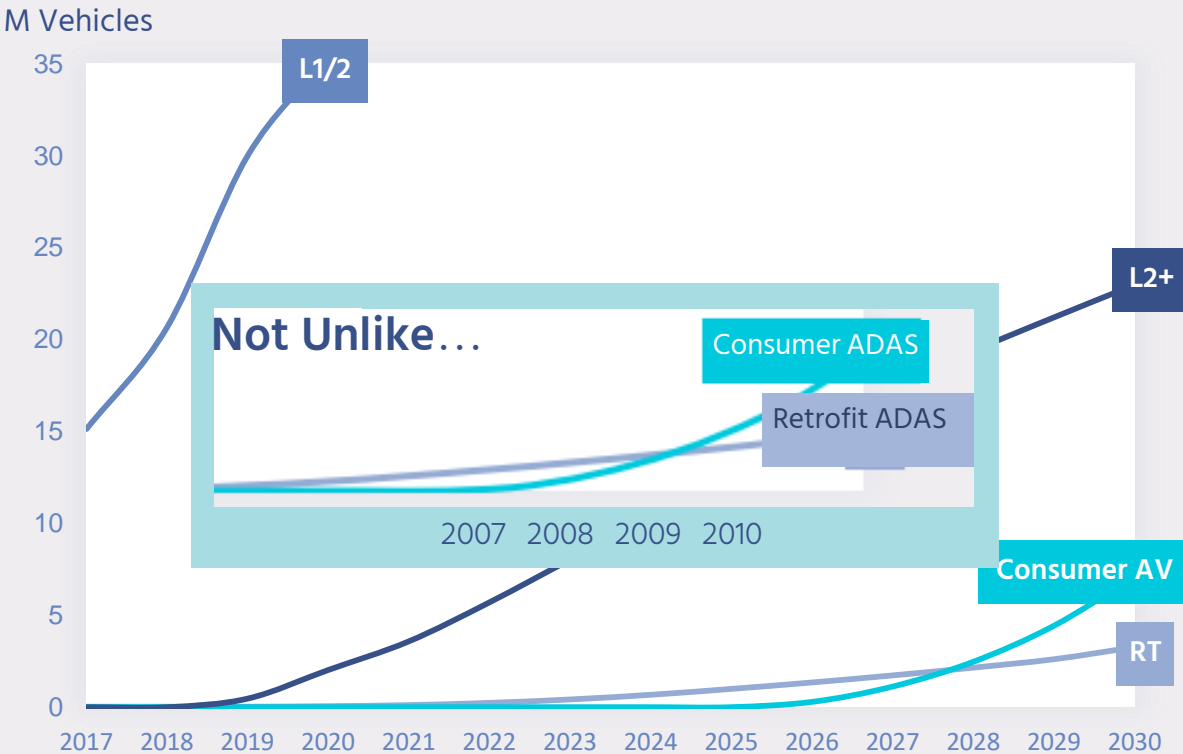
Consumer AV market will be timed by SDS productization and consequent cost/value optimization steps

Developing MaaS and driving it to quick convergence is critical to secure our SDS product fit, and to dominate the consumer AV ramp up ahead of the industry learning curve.

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# MaaS, at scale, is Imperative to our roadmap

MaaS plays a crucial role in shaping Self-Driving-Systems as a commercial product :

- Battle-testing and certifying the technology globally.
- Gaining regulatory and market credibility
- Cardinal data generator to fuel the future advances of this industry

## 1. **Optimization :**

To optimize the SDS product-fit towards the consumer AV phase, all factors above must be maximally amplified by operating at scale

## 2. **Co-Optimization:**

SDS is undoubtedly the value-engine that propels MaaS.

Its characteristics have profound impact on shaping all value nodes on top :

- + Teleoperation protocols
- + Self driving vehicle interfaces and design
- + Rider experience and HMI
- + Fleet operation and diagnostics routine
- + Control center

All the way up to the **customer facing service** layer and **GTM strategy**.

# MaaS layers & crosstalk

MaaS Layer 5

**Service & in-ride experience**

MaaS Layer 4

**Mobility Intelligence**

MaaS Layer 3

**Fleet Operations**

MaaS Layer 2

**Self-Driving Vehicles**

MaaS Layer 1

**Self-Driving System**

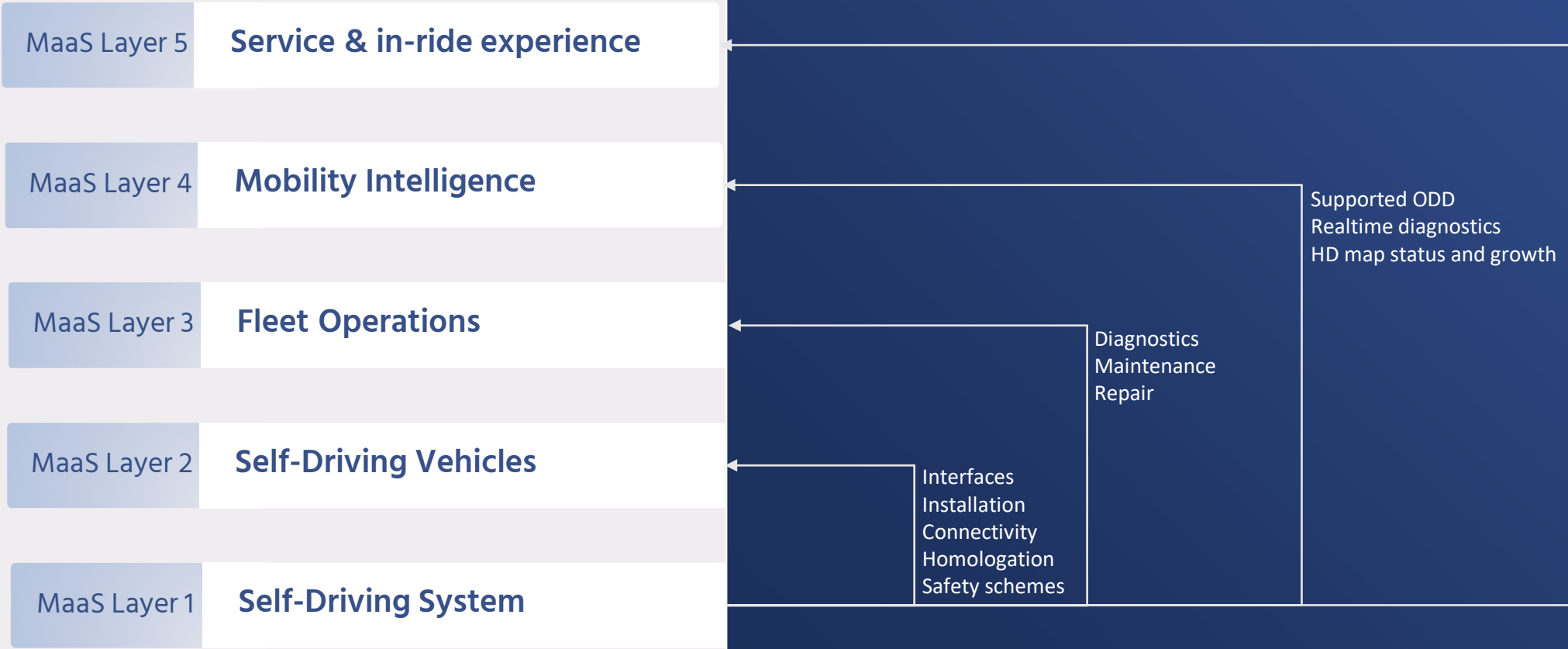
## Value Determinants

- Optimized SLA & ETA
- Experience & Services
- Safety & Safety perception

## Cost Determinants

- HW- Vehicle & SDS
- Capital Utilization
- Efficient Teleoperation support
- Mixed fleet burdens

# MaaS layers & crosstalk



Technical → Psychological safety  
ETA estimations  
GTM for maximal utilization

# Self Driving System (SDS)

L.5	<b>Service &amp; ride experience</b>	MaaS UX Content Advertisement / O2O
Layer 4	<b>Mobility Intelligence</b>	Mobility Frontend Mobility Backend Fleet Intelligence Platform
Layer 3	<b>Fleet Operations</b>	Mixed Fleet Fleet Operations Platform Service Hubs/Depots Fleet Financing/Insurance
Layer 2	<b>Self-Driving Vehicles</b>	Rider Sensing MaaS UX HW Completion Centers Base Vehicle + L4 ready
Layer 1	<b>Self-Driving System</b> (AV-System/-Kit)	TeleOperation HD Map / Data Services SDS Software SDS Hardware

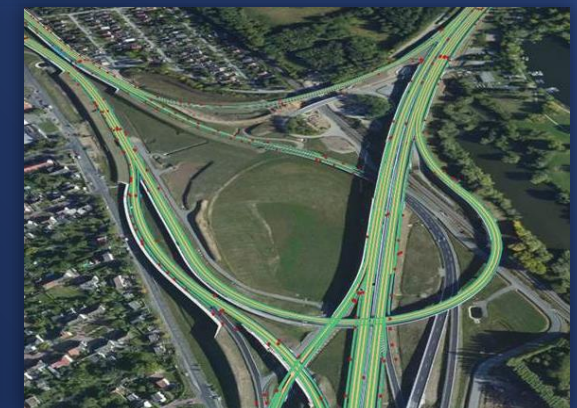
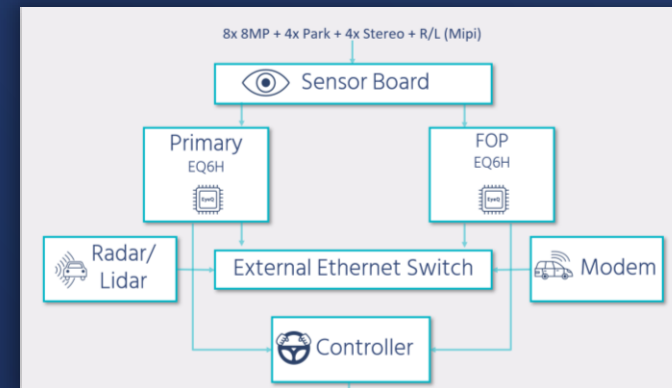
## Cardinal differentiation pivots

**EQ** Overall HW costs and power consumption

**REM** Seamless, selective geo scaling , ramp up

**RSS** Technical/Psychological Safety & Ride duration

**True redundancy** validation costs , generalization, ramp up



# Teleoperation

Layer 5	<b>Service &amp; ride experience</b>	MaaS UX Content Advertisement / O2O
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Decision making delegated to human operator



SDS executes into control commands

## Control Center



Real Time  
Data Feed



Policy  
Interventions



## Edge Cases



- Primary and essential SDS extension, by regulation, tightly couples
- Operator-to-cars ratio - key cost efficiency factor
- Incident response/resolve time – key service level factor

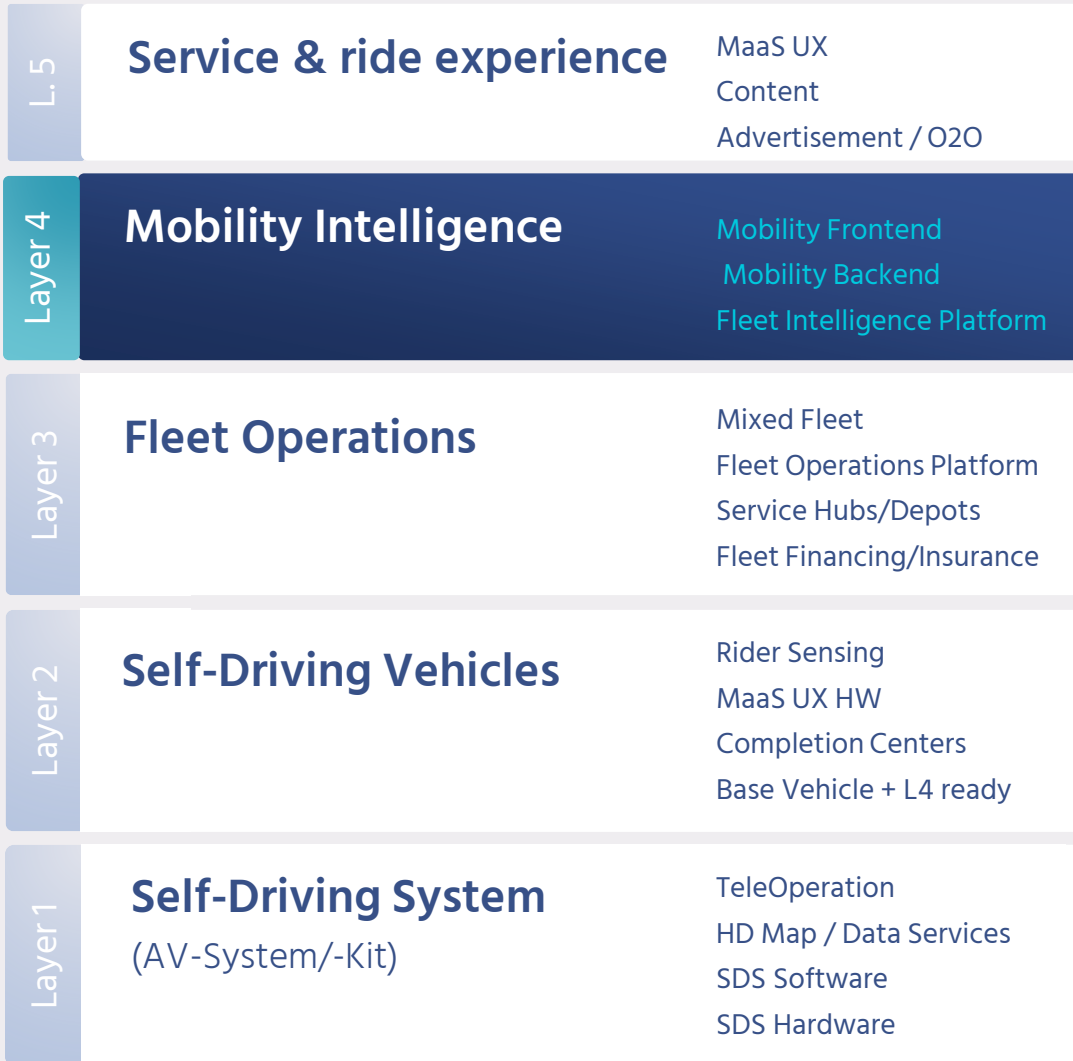
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Leveraging our asset of well established automotive industry position and partnerships to affirm design-fit and timely SDV supply opportunities

# Mobility Intelligence



## Fleet utilization models & algorithms

### Ride request

- A to B
- Time (now/scheduled)
- # Passengers

### Fleet model

- Vehicle location & task queue
- Battery level & charging location
- Vehicle size/type
- Maintenance schedule

### Environment model

- Current & predicted traffic
- Map & city planning
- Weather data

### Customer utility function

- Wait time elasticity, Price elasticity
- Pick-up/drop-off location elasticity
- Sensitivity to trip duration



### Demand prediction

- demand time / location patterns
- Special events & interest points

### Mobility Intelligence

### Values

- Maintaining service levels
- Optimizing utilization
- Value Pricing

# Fleet Operation

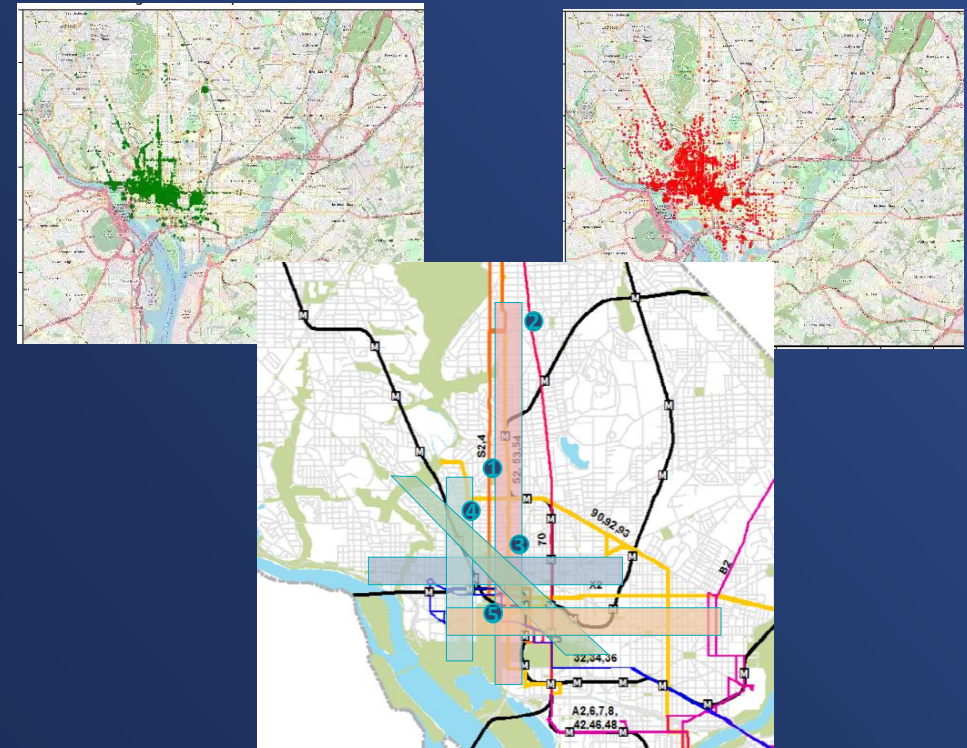
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## Minimizing The Mixed-Fleet burden

At first stages, while the ODD is being broadened, drives outside the ODD must be referred to human drivers in order to ensure an effective service.

These may be self-operated or partner services

Co-planning of GTM strategy along with the SDS ODD (by leveraging on our dynamic mapping capabilities) are Key to minimize the mixed fleet overheads while protecting service levels





# Content & Advertisement

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## MaaS User Experience

Key competitive advantage

The user experience allows for key differentiation and competitive advantage. It is not just about getting from A to B, it is also about the experience, content and services, experiencing psychological safety

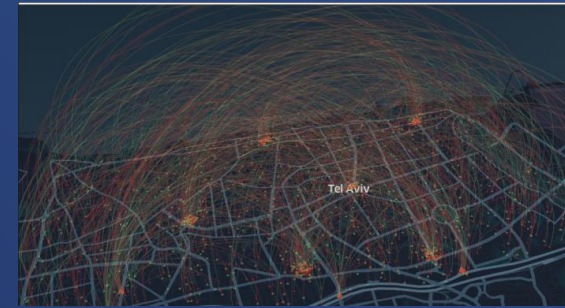
Robotaxis will serve as Audio-Visual theaters supporting : relaxation, productivity, virtual content/experiences, etc.

### Key Value Determinant layer

- Joyful experience with AR, VR, digital content & services
- Psychological safety




# MaaS layers & crosstalk



- Turns Use Cases
  - Protected Crossing
  - Unprotected Crossing
  - Protected Left
  - Protected Right
  - Unprotected Left
  - Unprotected Right
- Traffic Regulation
  - crossing
  - traffic\_signals

MaaS Layer 5	Service & in-ride experience
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MaaS Layer 3	Fleet Operations
MaaS Layer 2	Self-Driving Vehicles
MaaS Layer 1	Self-Driving System



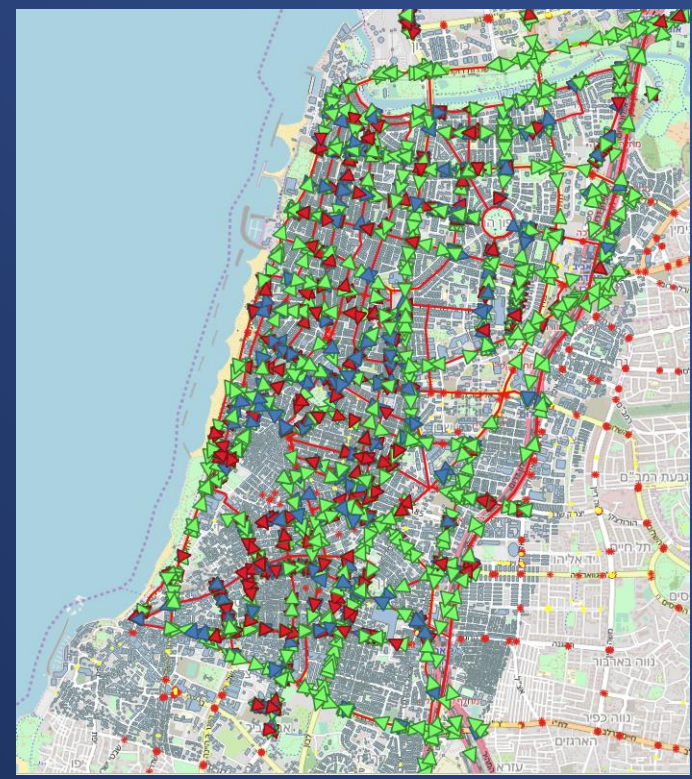




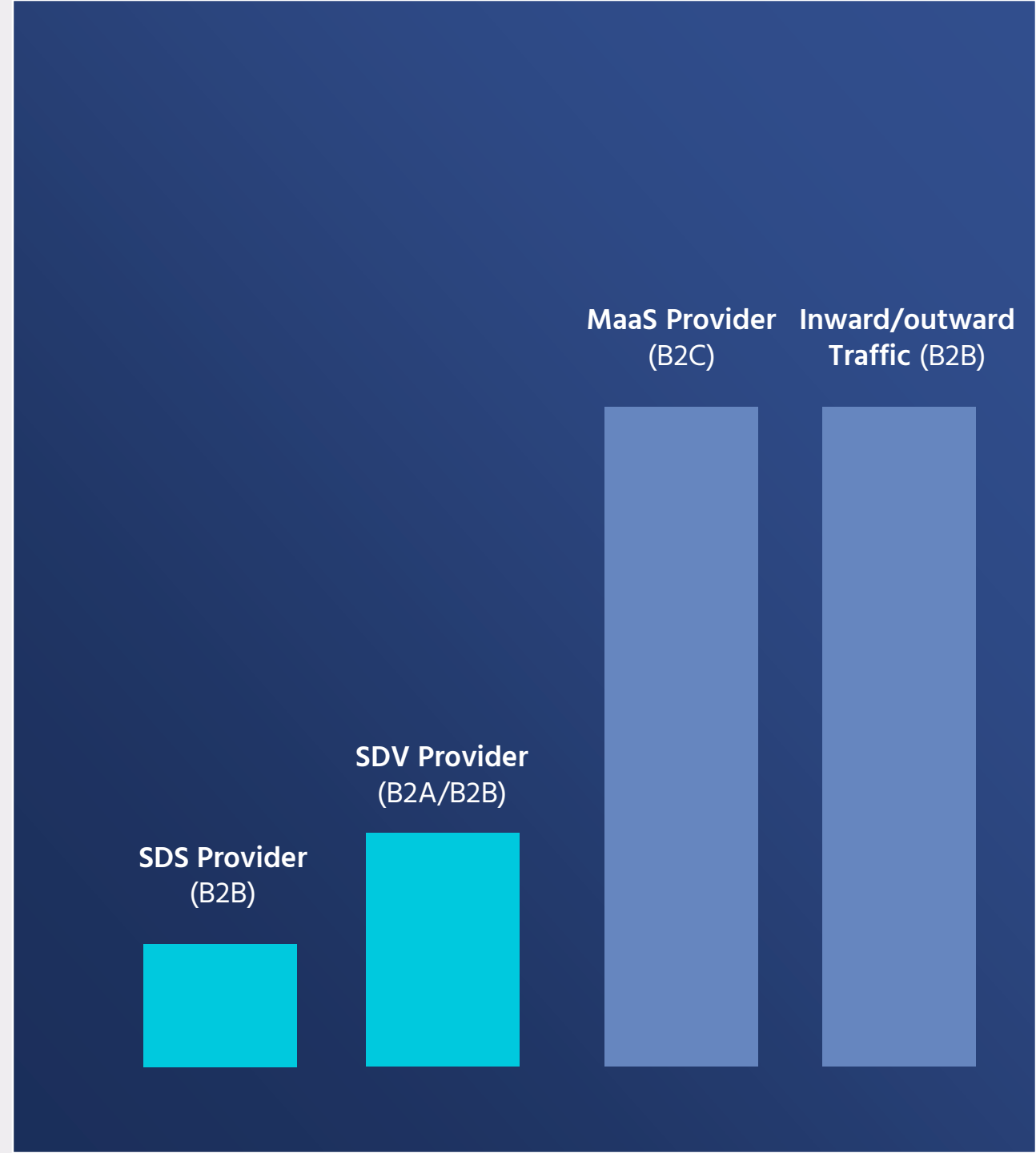





PINTA



# MaaS Products Portfolio



# Mobileye outlines strategy for driving significant Growth

Mobileye is Intel's fastest growing business year over year. The strength of the business today is largely attributable to a rapidly expanding advanced-driver-assistance systems (ADAS) market, and its future business will expand greatly with forays into data monetization and the nascent robotaxi market.



## ADAS/L2+

**>50M** CHIPS SHIPPED  
BY END OF YEAR

**75%** ADAS ADOPTION GROWTH  
BY 2025 FROM ~22% TODAY

**300** CAR MODELS  
WITH 27 OEM PARTNERS

**8 of 11** L2+ PROGRAMS  
BASED ON MOBILEYE

**New Design wins**  
ACROSS EU, CHINA, INDIA



## Mapping

**Fully automated**  
CROWD-SOURCED MAPPING  
OF EUROPE BY Q1 2020 AND U.S. BY END OF 2020

**Monetizing data**  
WITH SMART CITIES BY 2020

**Mapping "big 5"**  
CHINA, EMEA, INDIA, KOREA AND THE U.S.

**>20 Customers**  
ORDINANCE SURVEY TRIAL EXPANDS



## Robotaxi/av

**\$160B opportunity**  
IN MOBILITY-AS-A-SERVICE BY 2030

**volkswagen**  
ROBOTAXI IN TEL AVIV ON TRACK

**Nio I4**  
DESIGN WIN