VSI Labs

Automated Mobility on Demand (AMoD)

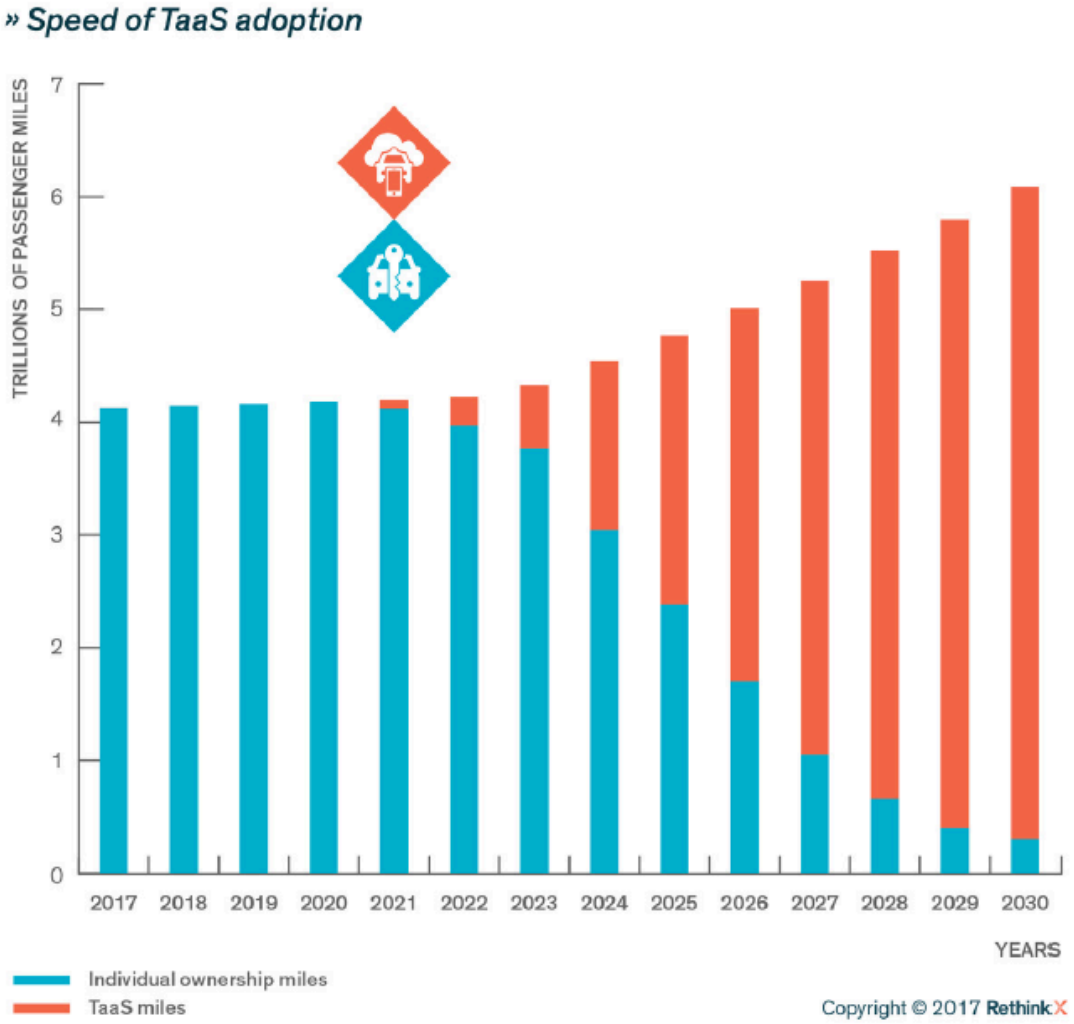
March - 2018

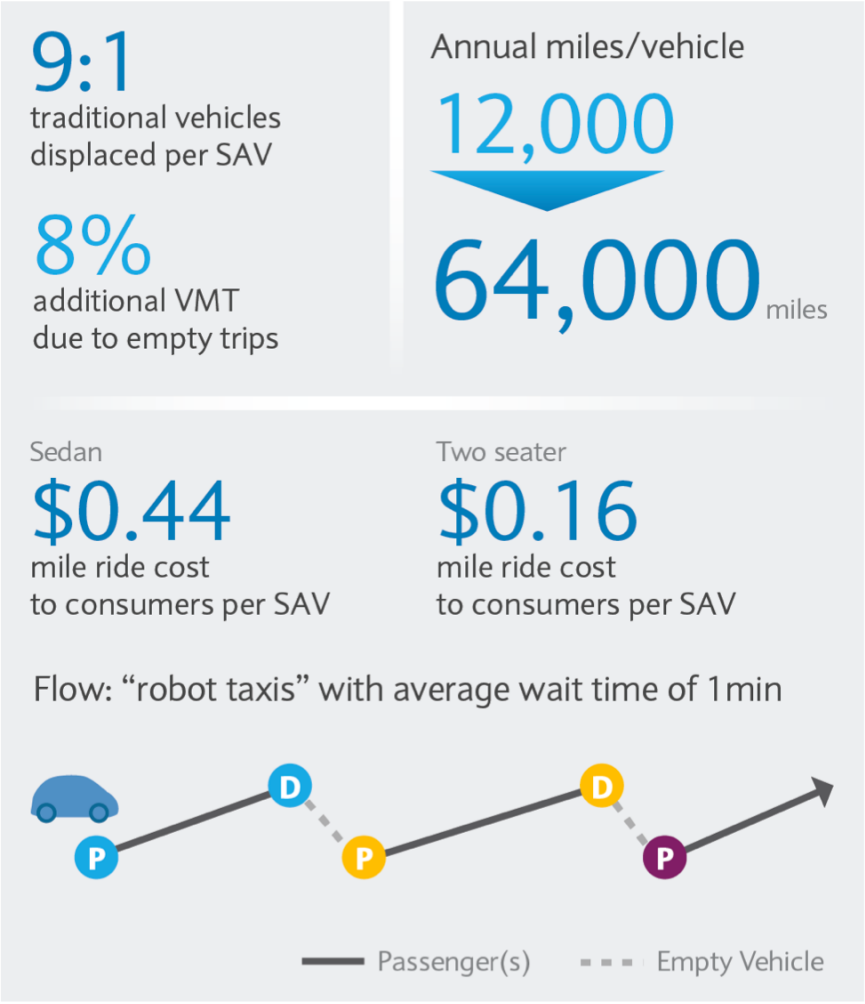
Agenda

- **Changes in Personal Mobility** – Cost benefits for the TNCs and OEMs as main driver
- **Automated Mobility on Demand (AMoD)** – Definition, deployment status, and technical gaps
- **The Road to AMoD at Scale** – Open/modular/interoperable autonomous mobility platforms
- **The New AMoD Eco-system** – New eco-system leaders

Changes in Personal Mobility & Benefits of Automated Mobility

Beginning of a global shift away from personal vehicle ownership to a shared, on-demand model where vehicular transportation can be summoned rapidly via mobile to one's current location.



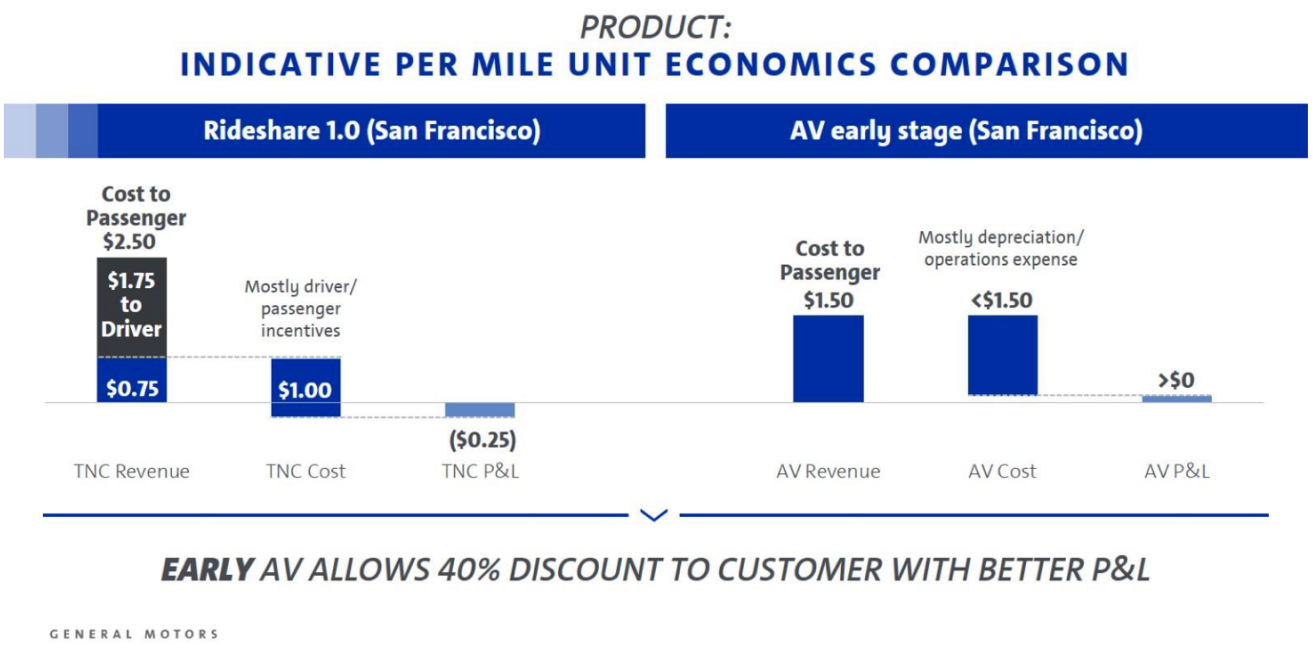


Source: Barclays Research (2015)

Changes in Personal Mobility & Benefits of Automated Mobility

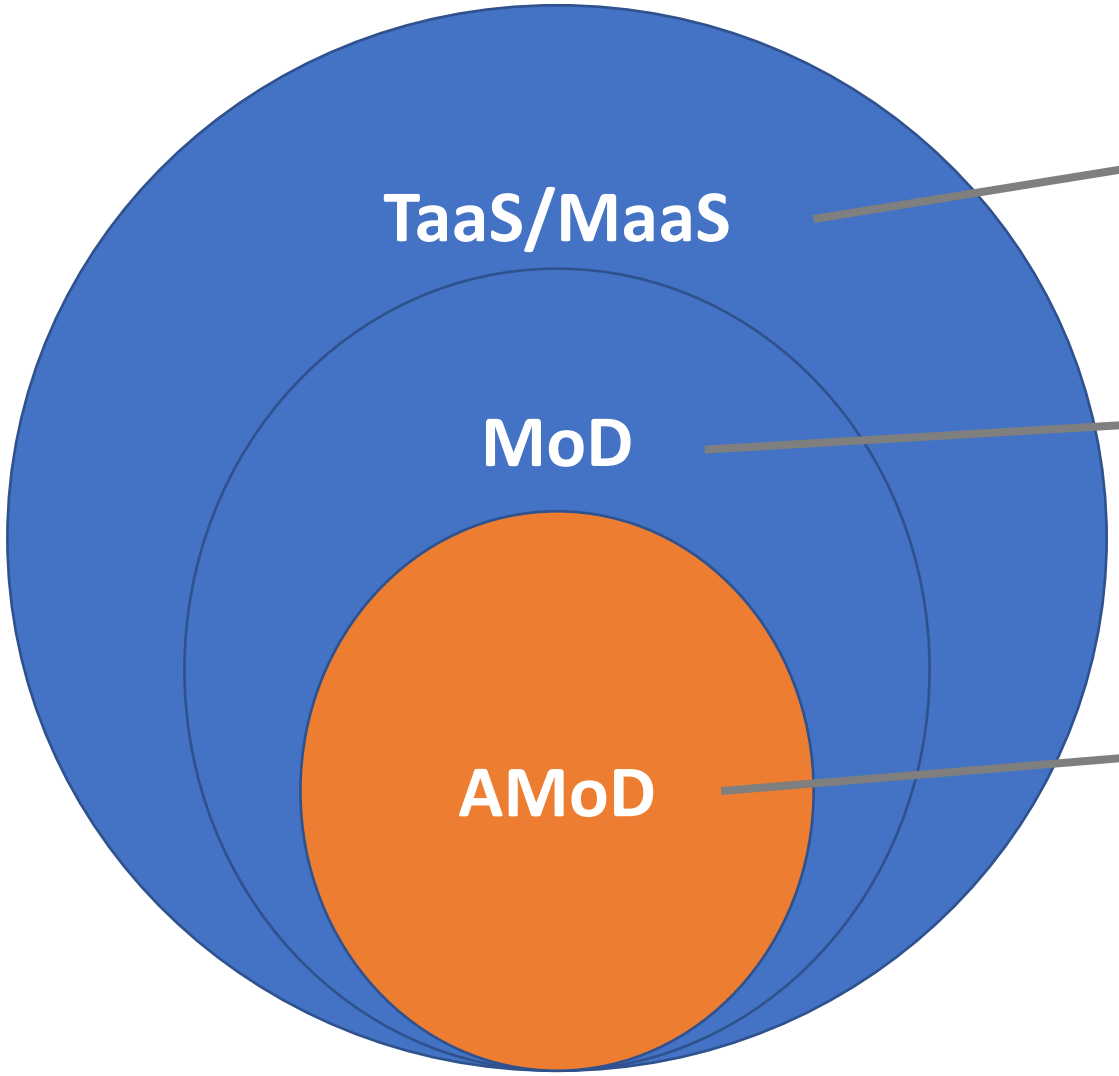
Such economic benefits are well understood by traditional automotive OEMs, suppliers and host of other companies.

"A myth is that billions of dollars are being spent on autonomous driving only for critically important reasons such as safety, access, traffic, convenience, and environment, while the reality is that **increasing "Mobility as a Service (MaaS)" productivity is the major motivation."**



GM expects the **cost-per-mile** of its autonomous ride-sharing vehicles to be **under $1 by 2025** by reducing the vehicle cost, improving the duty cycle, and maximizing utilization rates of AVs.

AMoD – Automated Mobility on Demand defined

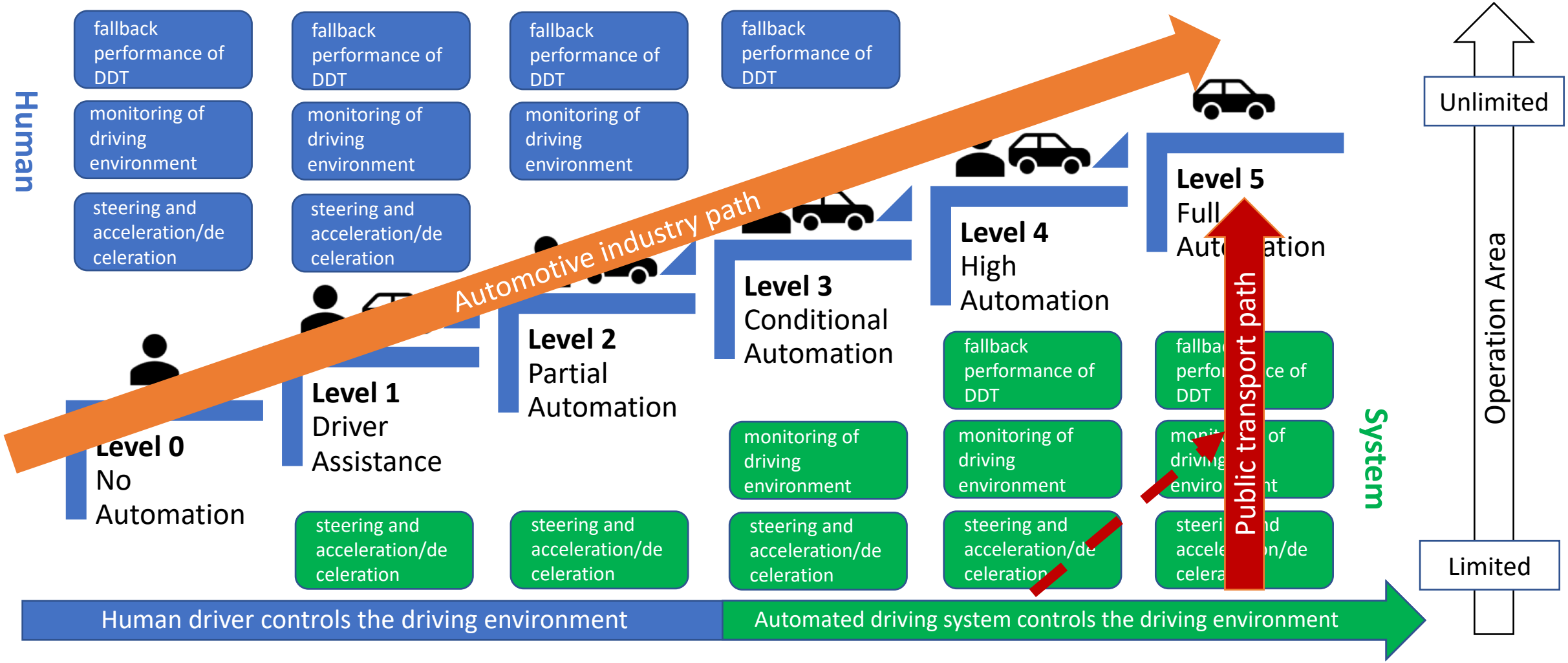


Transportation as a Service (TaaS)/Mobility as a Service (MaaS)
Solutions that are consumed as a service for movement of people/goods

Mobility on Demand (MoD)
Transportation that can be scheduled for individual use via a smartphone app, for example, whereby the user can summon the vehicle to his/her current location

Automated Mobility on Demand (AMoD)
Robo-Taxi or Driverless taxi, an autonomous car (SAE level 4 or 5) operated in MoD service

Traditional Auto vs. Public Transportation Industry

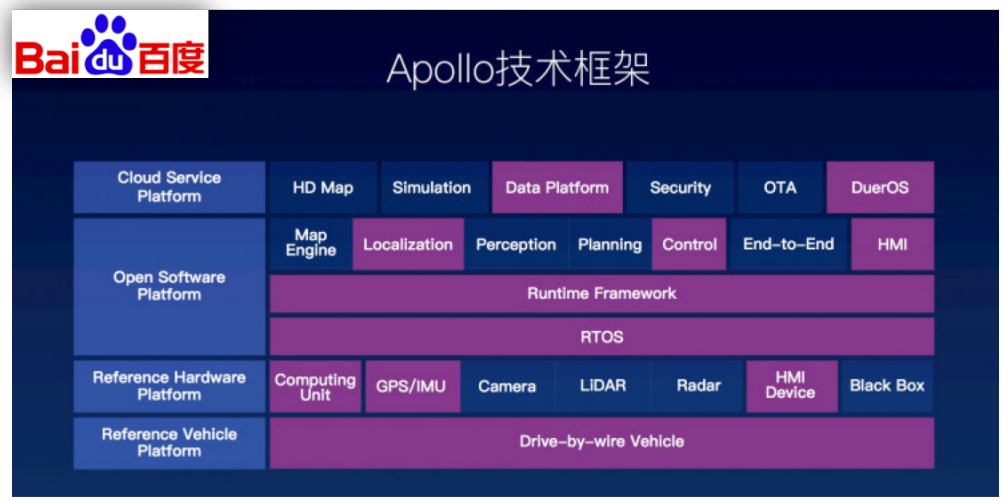


*DDT = Dynamic Driving Task

AMoD – Current Deployment Status and Plans

WAYMO · lyft · nuTonomy · navya · TORC ROBOTICS · SD · LOCAL MOTORS · UBER · EASY MILE · Baidu 百度 · ZOOX · RDM GROUP · JingChi 景驰科技 · nauto · MAY · AMBER

The Road to AMoD at Scale – Open & Interoperable Platform



Apollo Partners

AutonomouStuff · BEIHANG UNIVERSITY · BEIJING INSTITUTE OF TECHNOLOGY · Bao Ding · BAIC MOTOR

BAIC BJEV · CHJAutomotive · BOSCH · CQLJ · CHANGAN

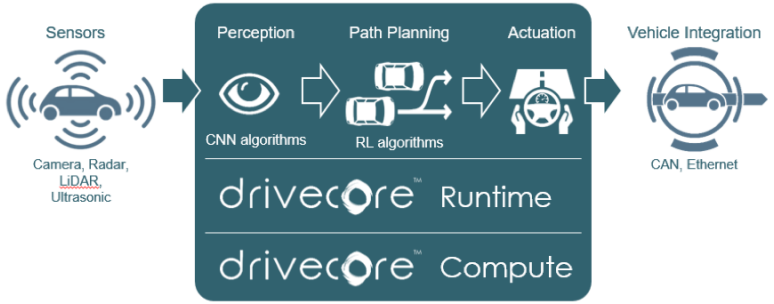
Great Wall Motor · continental · DELPHI · DONGFENG MOTOR · FAW Group

FAW JieFang · DAIMLER · Horizon Robotics · DESAY SV AUTOMOTIVE · FlyAudio

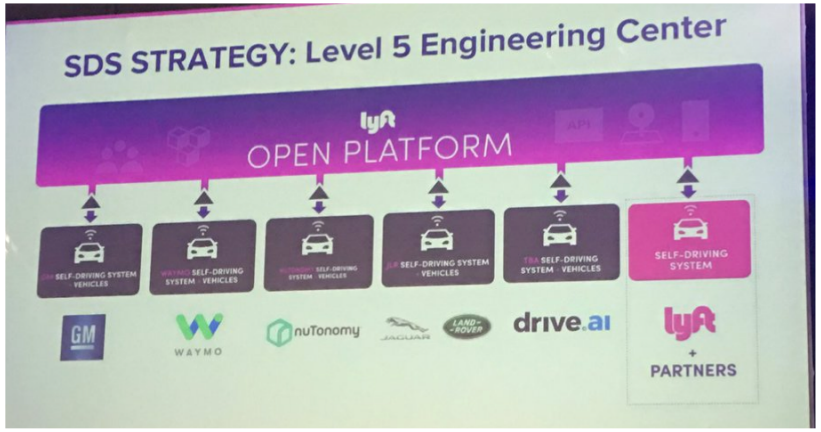
fortemedia · FOTON · Ford · Grab · Hesai Photonics Technology

Visteon

DriveCore™ Autonomous Driving Controller



drivecore™ Studio



SAMSUNG

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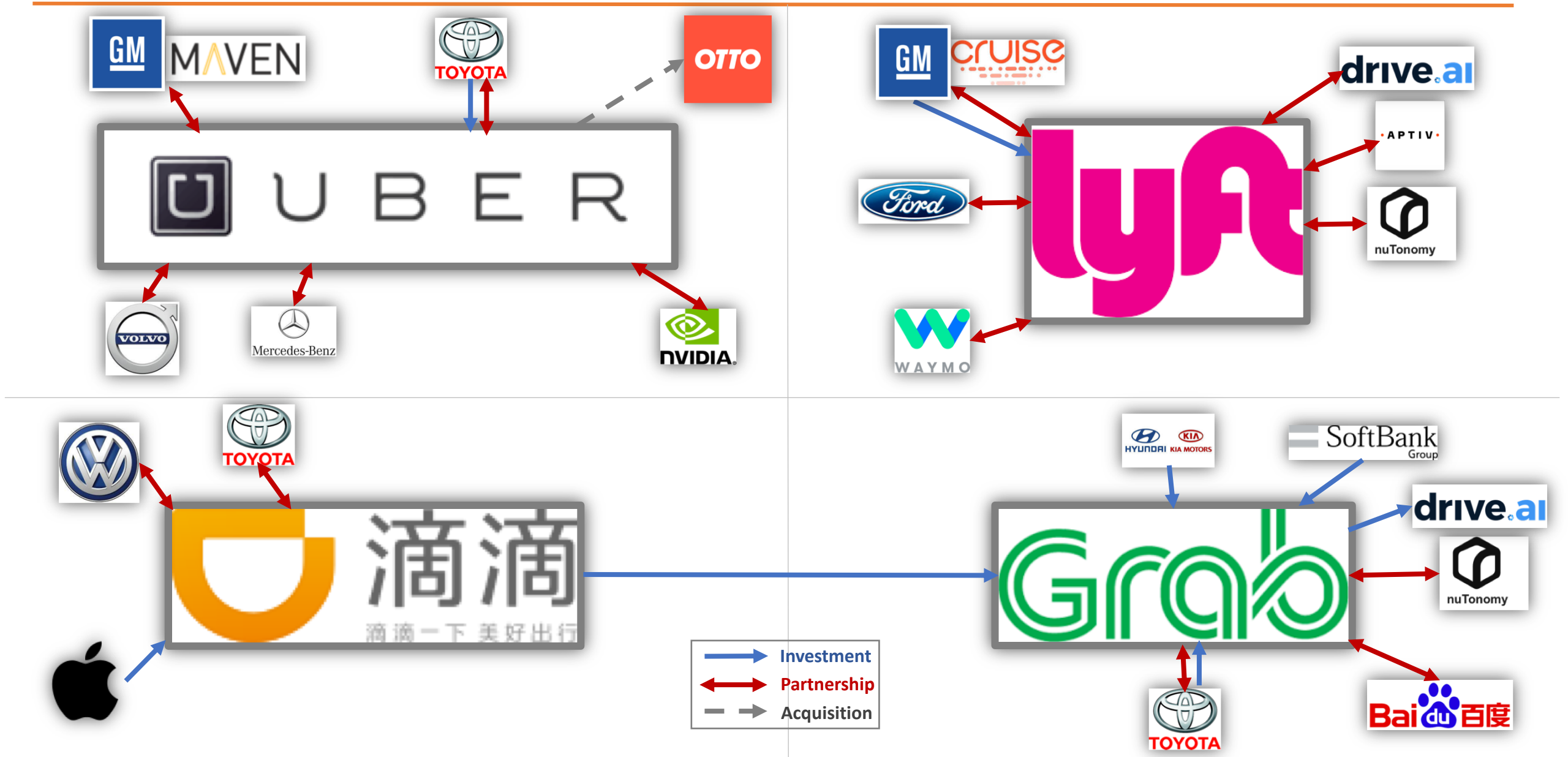
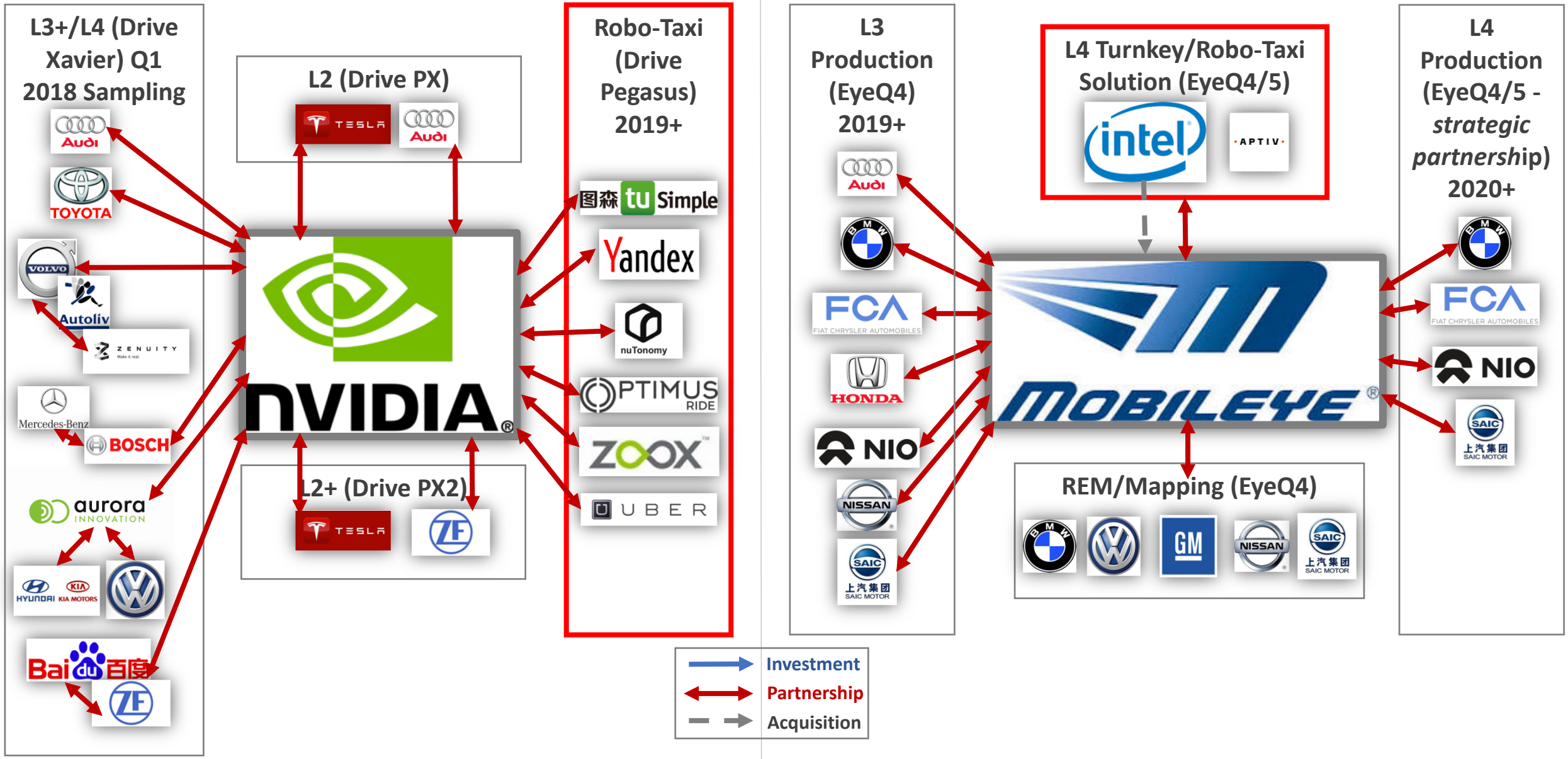
The New AMoD Eco-system – Transportation Network Companies (TNCs)



The New AMoD Eco-system – Nvidia vs. Mobileye Camp



Take-aways

- **Changes in Personal Mobility** – Automated mobility as more affordable consumers transportation option, cost benefits for the TNCs and OEMs
- **Automated Mobility on Demand (AMoD)** – "Robo-Taxis" operated in an AMoD model is one of the most rapidly adopted applications of autonomous cars at scale.
- **The Road to AMoD at Scale** – Current Robo-Taxi technology is limited in achieving AMoD at scale due to its lack of interoperability with other heterogeneous systems and cloud assets. Thus, "Open" autonomous mobility platform activities are growing among AV development communities.
- **The New AMoD Eco-system** – Beyond developing self-driving car systems, new leaders are creating an extended development ecosystem for AMoD.