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Exploring the Future of Mobility

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Converging forces are transforming mobility

Maturing powertrain technologies

Battery and fuel-cell electric vehicles offer higher energy efficiency, lower emissions, greater energy diversity, and new vehicle designs

Lightweight materials

Stronger and lighter materials are reducing vehicle weight without sacrificing passenger safety

Rapid advances in connected vehicles

New vehicles are being outfitted with **vehicle-to-infrastructure (V2I), vehicle-to-vehicle (V2V),** and **communications technologies,** so every car can know precisely where every other car is on the road

Shifts in mobility preferences

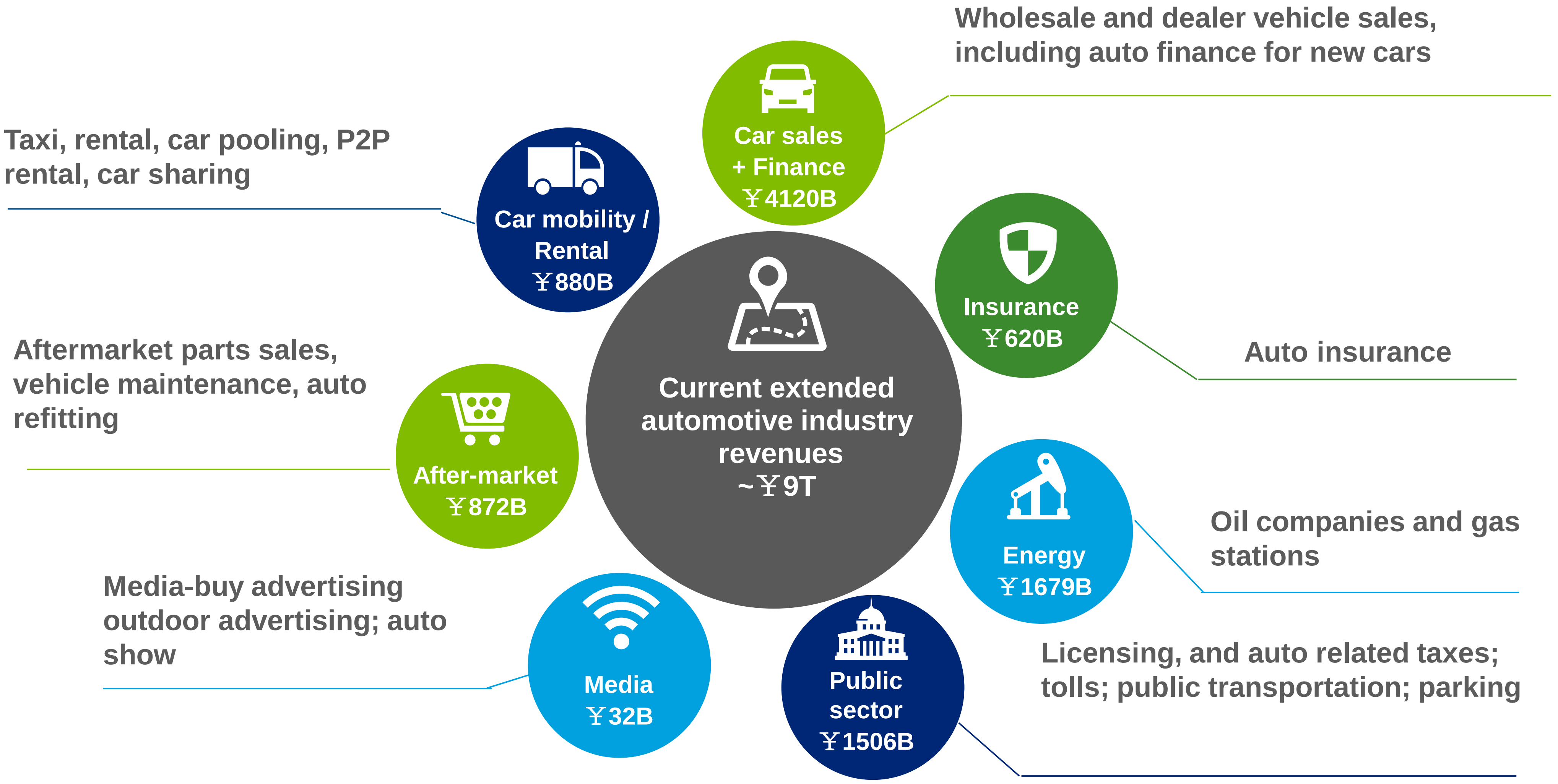
Younger generations are leading the way toward **pay-per-use mobility** in place of owning a car; nearly 50% of Gen Y consumers like using a smartphone app for transport and already plan travel so they can multitask[1]

Emergence of autonomous vehicles

Autonomous-drive technology is no longer a case of science fiction; the question is **when and how** will it become more **mainstream and widely adopted?**

Source: Deloitte analysis [1] Deloitte Global Automotive Consumer Study, 2014

Stakes are high – with approximately $9 trillion RMB in revenue collected annually by the current extended auto industry



Source: Deloitte analysis based on *IBISWorld* Industry Reports, IHS, DOT, US Census, EIA, Auto News, TechCrunch. Current revenue represents 2015 figures (or earlier if 2015 data not available) in China

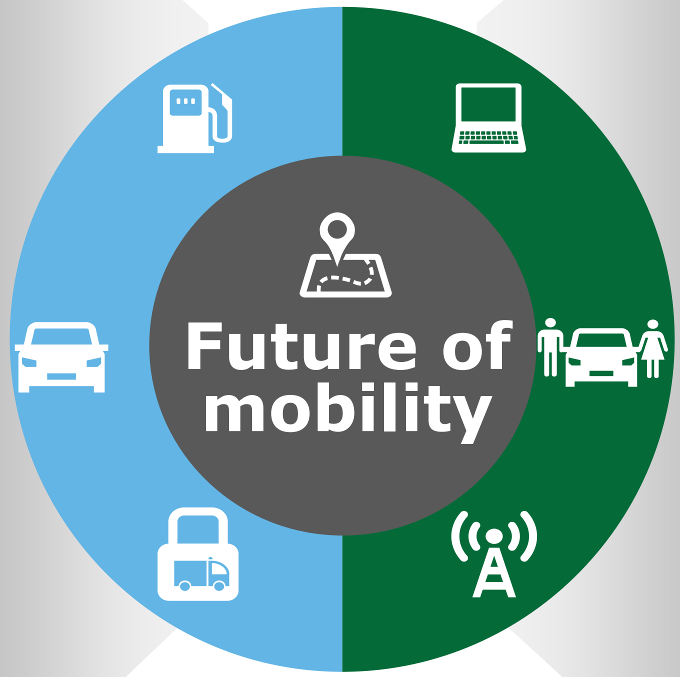
There are two profoundly different visions about how the future could evolve

Insider view

The industry will **evolve naturally** and **incrementally** toward a future mobility system that **retains its roots** in what exists today

The key players, major assets, and overall structure of the **current ecosystem can remain intact** while change progresses in an **orderly, linear fashion**

The incumbent mindset appears **dually focused** on sustaining the current model while **testing change in small ways**



Disrupter view

A **whole new age** is dawning featuring **fully autonomous** cars accessible on demand

Before long, a **tipping point** will occur, after which the **momentum of change will become unstoppable**

New entrants, notably BAT, Didi, NextEV among others, **are catalysts** for transformation

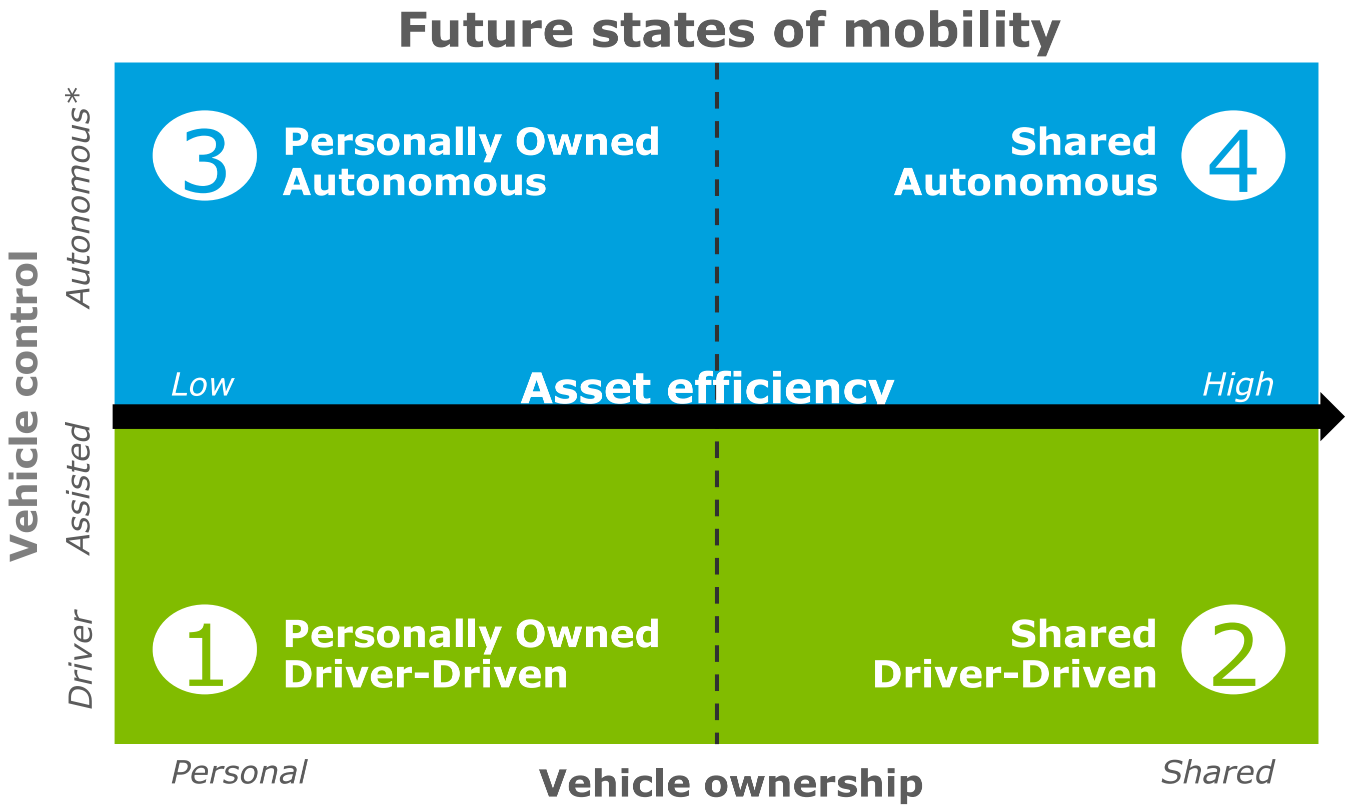
Unlike the stakeholders in today's system, they **do not have vested stakes** to protect

Source: Deloitte analysis, based on publicly available information and company websites

Converging forces will likely give rise to the emergence of four future states of mobility, which will exist in parallel

Extent to which autonomous vehicle technologies become pervasive:

- *Depends upon several key factors as catalysts or deterrents—e.g., technology, regulation, social acceptance*
- *Vehicle technologies will increasingly become "smart"; the human-machine interface shifts toward greater machine control*



Extent to which vehicles are personally owned or shared:

- *Depends upon personal preferences and economics*
- *Higher degree of shared ownership increases system-wide asset efficiency*

Note: Fully autonomous drive means that the vehicle's central processing unit has full responsibility for controlling its operation and is inherently different from the most advanced form of driver assist. It is demarcated in the figure above with a clear dividing line (an "equator").

The adoption rates vary greatly for shared mobility (already well underway) vs. autonomous drive

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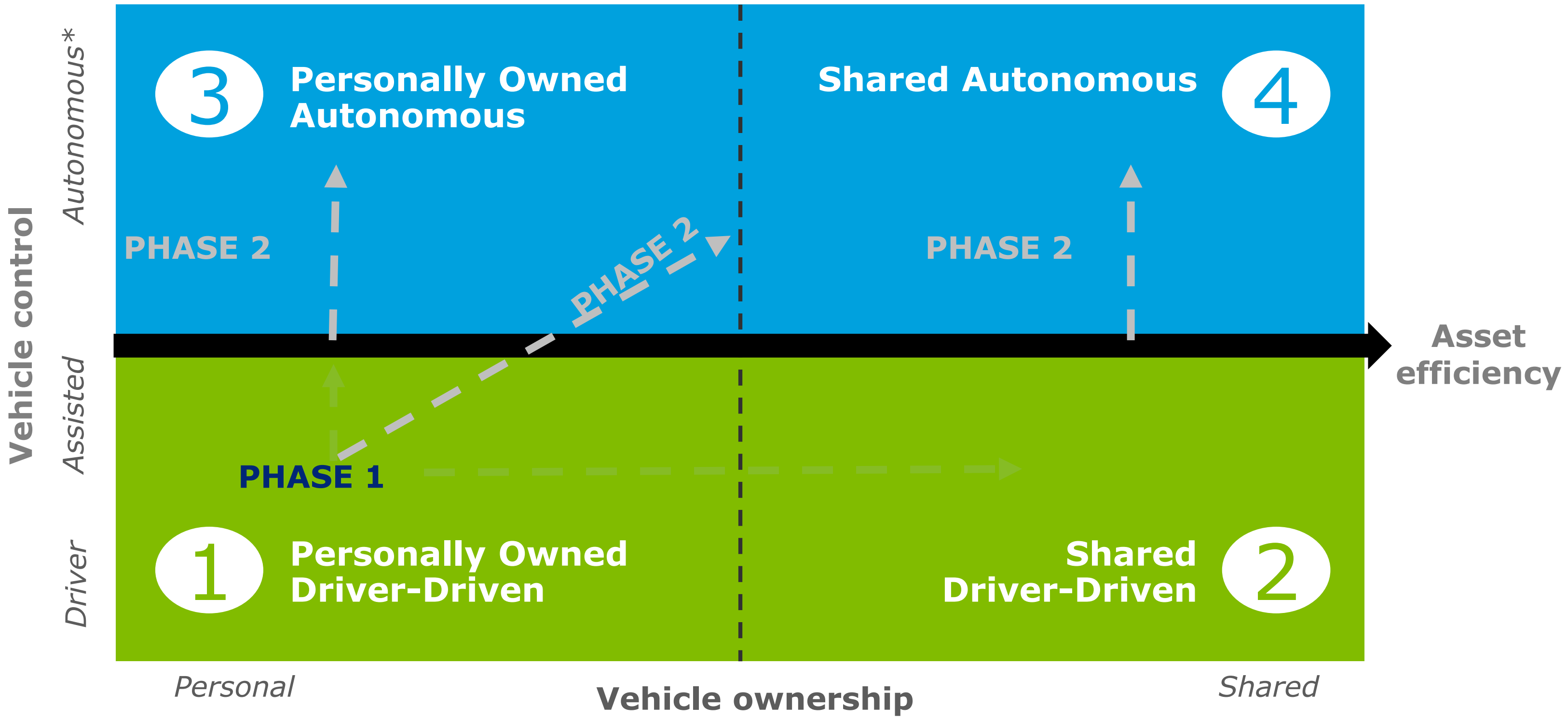
Future states of mobility



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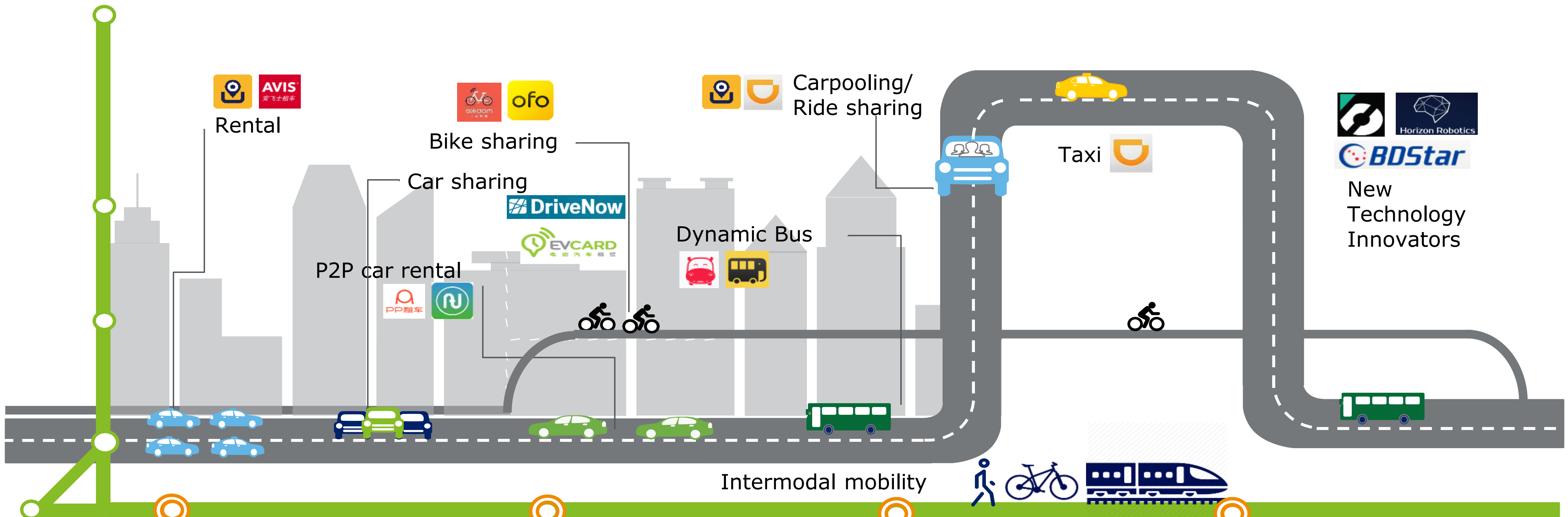
The future has already started- China’s Urban Mobility Scenarios



Driving Forces

China’s new urbanization

- By 2030 China will have 23 mega cities that hold more than 131mn people
- Integrating small cities and towns into new megaregion
- High speed trains connecting outskirts to hub cities within one-hour commute

Regulation and policies

- City planners revise land use plans and rethink urban sprawl
- Turn the existing vehicle-centric transport ecosystem to a more transit and pedestrian friendly one

Consumer behaviors

- VKT by private cars dropped continuously
- Cost, convenience and timeliness become top priority when choosing transport modals
- On-demand and real-time mobility becoming commonplace

Emerging mobility providers

- Complement public-transit system
- Increase service availability, drive cost down and meet riders’ diverse demands
- Continue to grow in significance

Key questions to consider

In the different Future of Mobility Scenarios, where will new business opportunity and business models emerge?
What are the key roles in the ecosystem?

Where and how can the most value be created?
What new capabilities are required to capture this value?

Who will be the disruptors of the current disruptors?
From where in the ecosystem are they expected to emerge?

How is the Future of Mobility landscape different in China?
What is the role of the government and municipalities?

Deloitte is exploring the future of mobility

http://dupress.com/collection/future-of-mobility/