

Business model shifts

How shared and integrated mobility models are challenging traditional car industry

Have you ever imagined what cars would look like in the future? Many sci-fi films that attempted such as Minority Report and I, Robot portrayed the future with elaborate footages of self-driving cars that drove in a coordinated manner, looked invariably the same and some even took to the sky. If we mapped this out across Maslow's hierarchy of needs, cars of the future would sit at the apex of the pyramid.

The digital disruption has the potential to transform the automotive industry by providing new opportunities for smart autonomous cars. Now, cars can communicate, socialise and cooperate with

other infrastructure and mobility apparatus. This includes other vehicles, traffic lights, mechanics, parking lots and dealers—thus enabling them to participate in a broad 'system of systems'.

Going forward, car manufacturers need to adopt new business models to defend their ground by redesigning customer engagement and expectations. Advances in digital businesses and technologies are offering consumers new capabilities. The rapid reorganisation and the shift we are going to see in the future may constitute a new form of cars and a revamp of the whole mobility ecosystem.

A shift to automation is expected through smart algorithms to improve efficiency, semi-automated parking functionality, and fully automated driving.

Carsharing models are likely to expand to include P2P and corporate on the same platform, as well as consolidation with other adjacent mobility services.

Consolidation in the market is likely, with OEMs playing an increasingly important role.

FUTURE
A world that is...

Vehicles hardly ever crash once human error is removed from the equation.

Energy demand drops as tailored vehicles enable more efficient and environmentally friendly powertrains.

Traffic jams become a rarity as sensors govern distance between vehicles and manage traffic patterns.

Trip costs plummet as the cost of commuting declines up to **70%**, increasing accessible mobility.

32K
lives saved

40%-90%
decrease in emissions from automobiles

100B hours
of productivity gained back

By removing the driver, automation will lower commuting cost per mile by about 70%. And by creating a self-driving fleet, this will have far-reaching consequences for the entire industry and its value chain. Fleet operators can then make collective vehicle purchasing decisions, increase leverage over carmakers and remove the mediation Uber drivers currently provide to tilt the sector to their advantage. Currently, Audi, BMW, Ford, Google, General Motors, Tesla, Volkswagen and Volvo are the leading companies developing and testing autonomous cars.

150m
connected vehicles predicted globally by 2020

Smartphone app, Lighting System ECU (interior & exterior), Steering & Braking ECU, Vehicle Access System ECU, Airbag ECU, USB, Bluetooth, Remote Type App, OBD II, Passive key less entry, ADAS system ECU

Source: Gartner

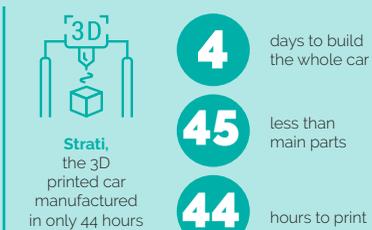
V2V: Vehicle to Vehicle
Each vehicle is a node with the ability to send and receive critical safety + mobility information to other vehicles.

V2I: Vehicle to Infrastructure
Vehicles are able to send and receive information to surrounding infrastructure and other users of the public right-of-way for a safer, more efficient transportation network.

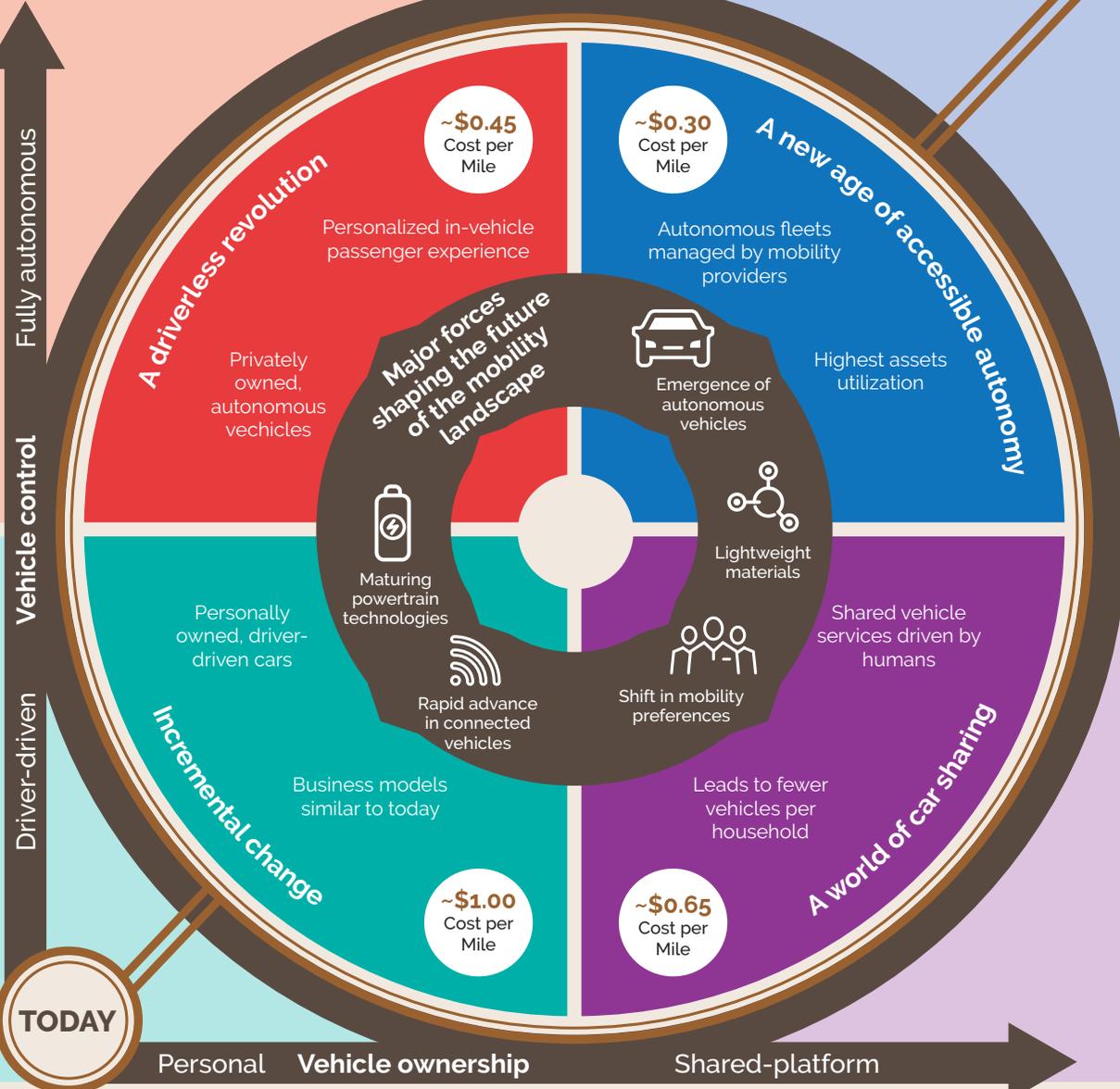
V2X: Vehicle to Everything
Vehicles can communicate with other vehicles, infrastructure and other users of the public right-of-way for a safer, more efficient transportation network.

Internal combustion engines are nonetheless an engineering marvel, channelling rapid-fire explosions to power a vehicle as it moves forward—and modern car designs have been deeply influenced by the strengths and weaknesses of internal combustion engines. To date, automotive companies have amassed great expertise in a broad range of sectors. By contrast, engines, transmissions, radiators, gas tanks and a lot of other auto parts would be rendered obsolete however when the next generation of cars in the future get powered by batteries and electric motors instead.

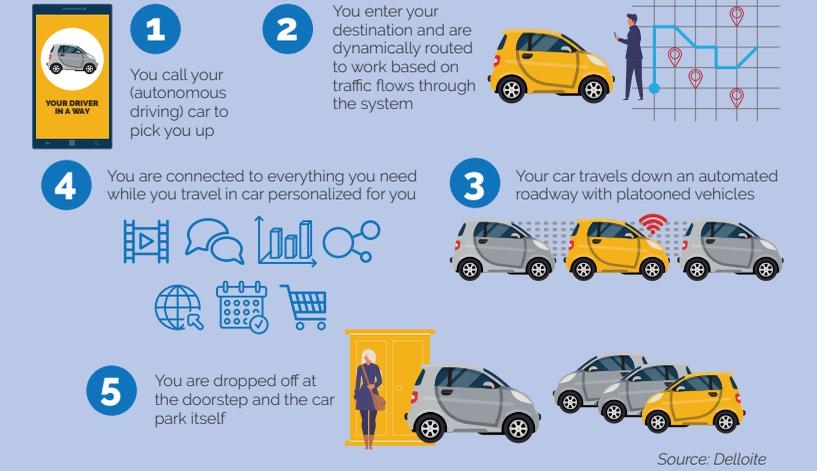
Who's ready for self-driving cars?



Source: Red Bull



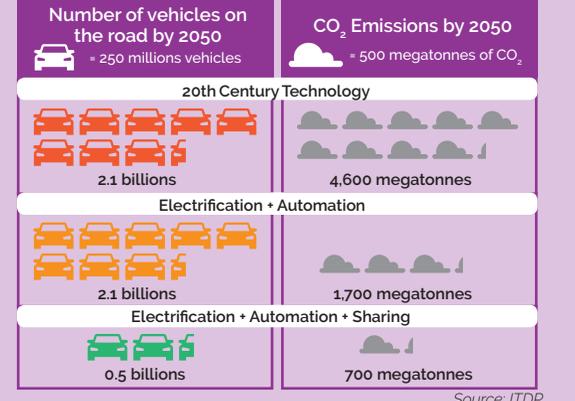
The future of mobility will be multi-modal, shared and zero emission. Thus, integrated shared mobility complementing traditional public transit such as bus + rail, will complete the ecosystem of services - a new category of private "public transport."



Shared mobility is the shared use of a vehicle, bicycle, or other mode of transportation that enables users to gain short-term access to transportation modes as-needed.

↑70% Over 70% of Malaysia's population will be urban by the year 2020. Source: DOSM

ITDP described a superior scenario, whereby all urban transportation revolutions are accepted by citizens, including electrification, automation, and sharing.



Beyond the automotive industry

Automotive manufacturers generate a huge chunk of their revenue by selling automobiles and services that are directly related to the automotive business such as maintenance services. For many years, the automotive industry has gained competitive advantages through advances in the fields of mechanical and electrical engineering.

More precisely, improvements in value depend on being able to create cost-effective

engines—provide and improve safety and key selling features such as auto braking, chassis control, multimedia systems equipped with connectivity functionalities and so on. A large number of analysts and executives in the automotive industry are convinced that this is going to change and the increase in value will be generated across the surrounding ecosystem. Unfortunately, the traditional hardware supply business model has reached its peak and is now tapering off.

Profound disruption will extend far beyond just the automotive industry

- Automotive**: Decrease in personally-owned vehicle sales and increase in fleet vehicles sales
- Energy**: Lower energy consumption from improved vehicle efficiency

Adapted from: Deloitte, MIGHT

- Finance**: Growth in fleet financing in place of auto loans and leasing
- Insurance**: Shifts from personal liability to catastrophic systems-failure insurance
- Media**: Increase in consumption of multimedia and information due to time not driving

- Medical & legal**: Reduction of costs for emergency medical services and related legal fees because of fewer accidents
- Public ector**: Erosion of tax revenues related to property and fuel taxes, vehicle registration and traffic citations
- Retail**: Increase in sales due to increased mobility of underserved segments (e.g. seniors)

- Telecom**: Additional bandwidth requirements to meet increased demand for connectivity and reliability
- Technology**: Emergence of autonomous drive operating system players
- Transportation**: Substitution of demand for traditional taxis, limos, and rental vehicles with shared fleet vehicles



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