

Objective of the Study: The Focal Question

The focal question is the key problem statement that we are looking to solve for through this exercise



How will the mobility ecosystem in India evolve till 2040 and what impact will it have on the automotive business models?

Trends and Uncertainties shaping the Future of Mobility

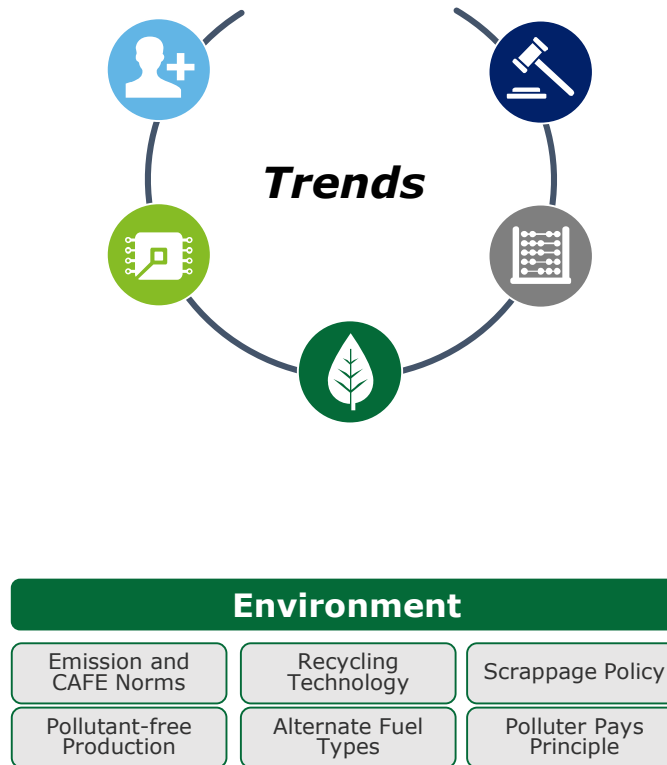
We studied over 100 emerging trends that are likely to play a role in building the future of mobility

Informed and Connected Customers	Growth of new Urban/Mobility Hubs
Awareness of need to be Eco-friendly	Increasing need of Customization
Adoption of Car Sharing solutions	Premiumization of Vehicles
Trust in OEMs	Future of Driving
Competition for Talent	Awareness of safety

Society

Technology

Alternate Powertrain (Electrification)	Lightweight Technology
Availability of low-cost batteries	Cheaper and Efficient Fast Chargers
Autonomous Driving	Platform consolidation
Connected Cars	Mobility as a Service
Energy Storage/ Grid management	Use of advanced materials
3D Printing (Manufacturing)	Shorter product lifecycle
Growing content per vehicle (electronics)	Role of data and on-the-go analytics
Improving efficiency of ICES	Digitization of after-sales services



Localisation/ Make in India	Incentives for EV Adoption (FAME)
Increased Safety norms	Policy support for mobility solutions
Data Storage Polices	Make for the World
Strength of IP Laws	Stringent mfg. and quality standards
Freedom of Trade/ Tariff Protection	Focus on Smart City development

Policy

Economics

Growing Economy/ Industrial growth	Growing consumption
Increased infra spending	Growth in Rural Spending Power
Diminishing power of traditional Suppliers	Growing role of digital and battery suppliers
Growth in Financing Options	Pay-per-use Ownership Models
Increase in PE investment	Reducing Cost of Capital
Mfg. White-Label Cars	Data Monetization
Reducing margins for Suppliers	E-mobility business models

NON-EXHAUSTIVE

Building the Scenarios: The Two Most Critical Uncertainties

There are two underlying themes that best define the critical uncertainties impacting the future of mobility – the extent of technological advancement, and extent of Govt. support

Incremental Improvements

Extent of Technological Advancement

Transformative Breakthroughs

- **Cost of batteries:** Costs falling <\$100/kWh will lead to adoption of EVs across private & public mobility
- **Use of advanced materials:** New materials for battery mfg. (lithium, sodium) and light-weighting (HSS, aluminum, carbon fiber) will improve battery life, and thus economics of ownership
- **Adoption of telematics:** If data becomes the oil of tomorrow, focus will shift to mfg. sensors, controllers
- **Extent of MaaS offerings:** If adoption of mobility services increases, and achieves financial viability, there is opportunity for ACMs to collaborate and develop dedicated offerings

Reactive and Ad-hoc

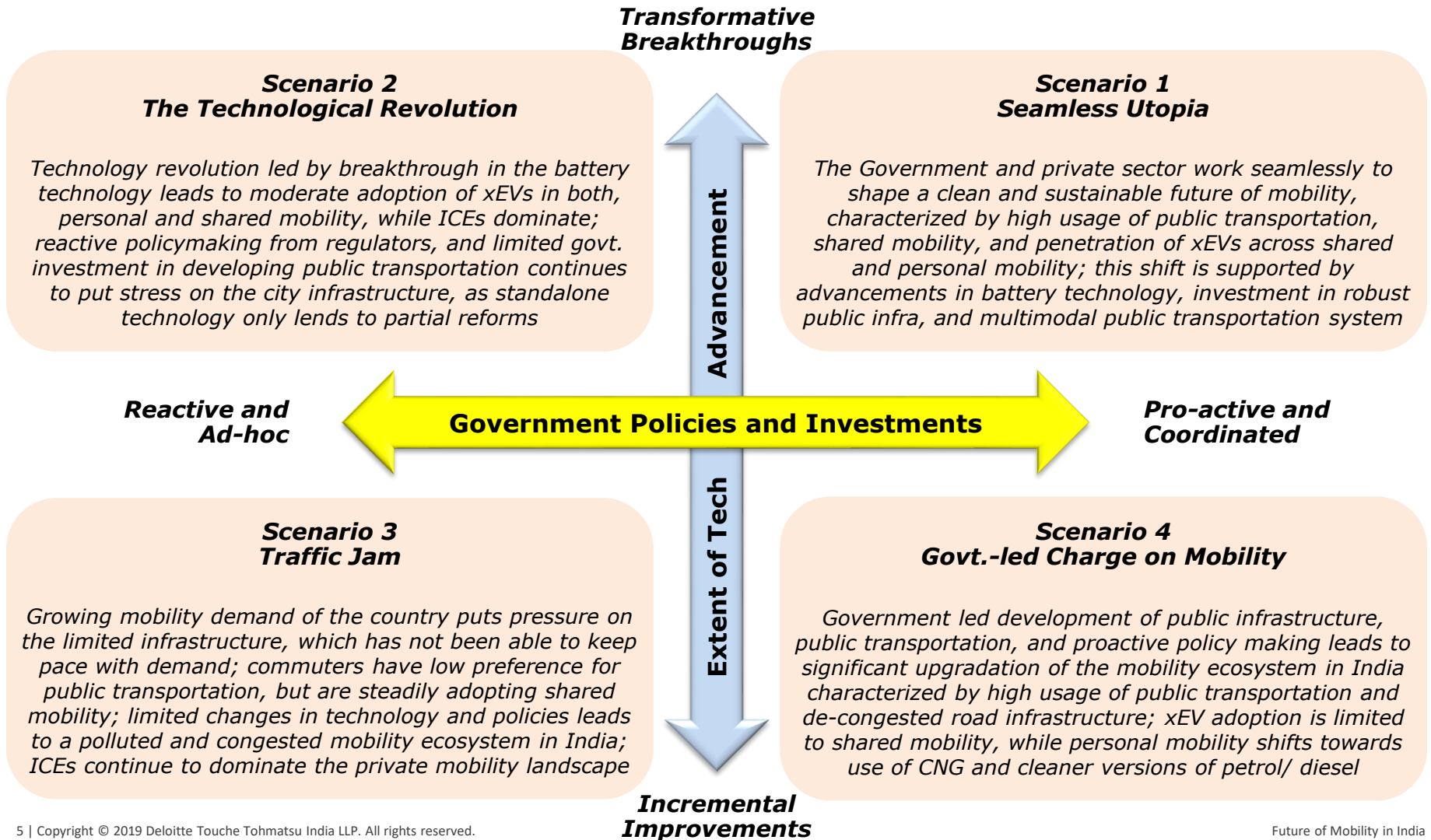
Extent of Govt. Support to Policy and Infra Development

Pro-active and Coordinated

- **Infra development:** Govt. investment in public and charging infrastructure to boost EV adoption
- **Emission and safety norms:** Potential for repeated disruptions for ACMs, in ICE, exhaust mfg., ABS mfg.
- **Introduction of scrappage policy:** Will increase sales and thus, OEM and ACM revenues in the long run
- **Policy support to localization:** May promote **indigenization of production, build local talent pool** to develop standardized low-cost components and make ACMs globally competitive

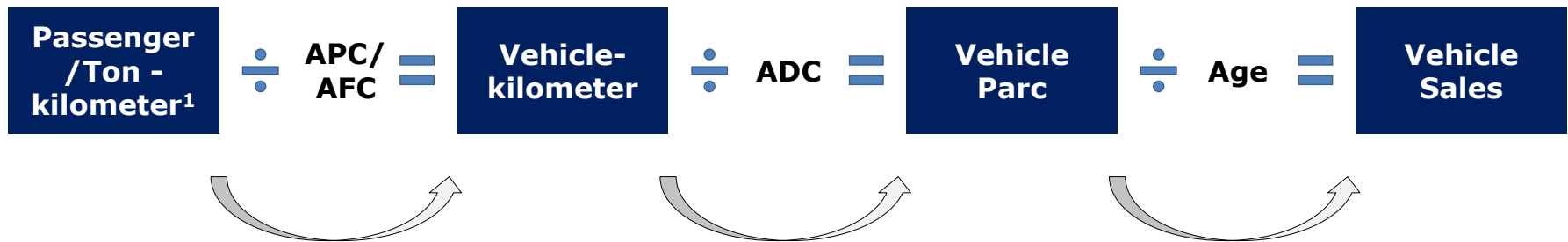
The Four Scenarios

These uncertainties when put together, give rise to four distinct scenarios for the future of mobility in India



Quantifying the Scenarios: Approach used for Projections

The basic input – passenger/ton-kilometer – has been used as the starting point to derive the parc and sales across Passenger-carrying and Freight-carrying vehicles



- Step 1: Split p-km/t-km by vehicle-type (2W/3W/etc.)
- Step 2: Divide by APC/AFC to get vehicle-km (v-km) for each vehicle-type
- APC/ AFC: Average Passengers/ Freight Carried by a vehicle per trip

- Step 3: Divide v-km (already split by vehicle type) by ADC to get parc
- ADC: Average Distance Covered by vehicle in a day

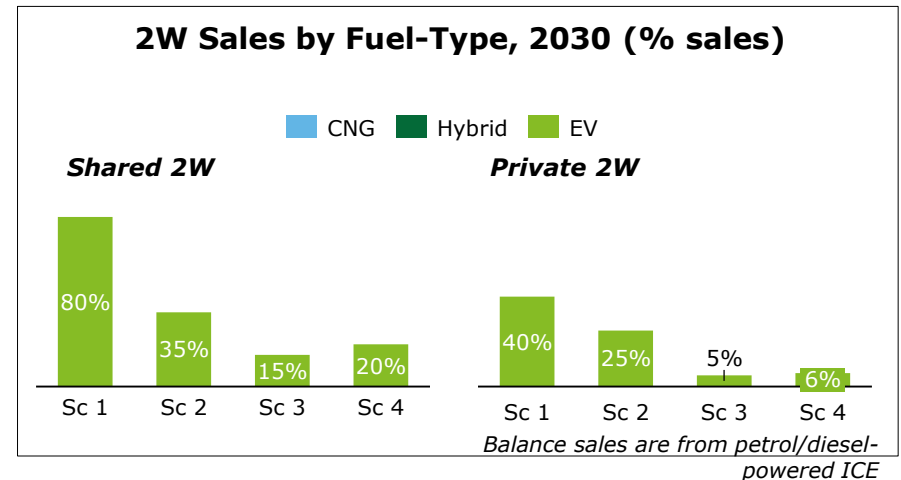
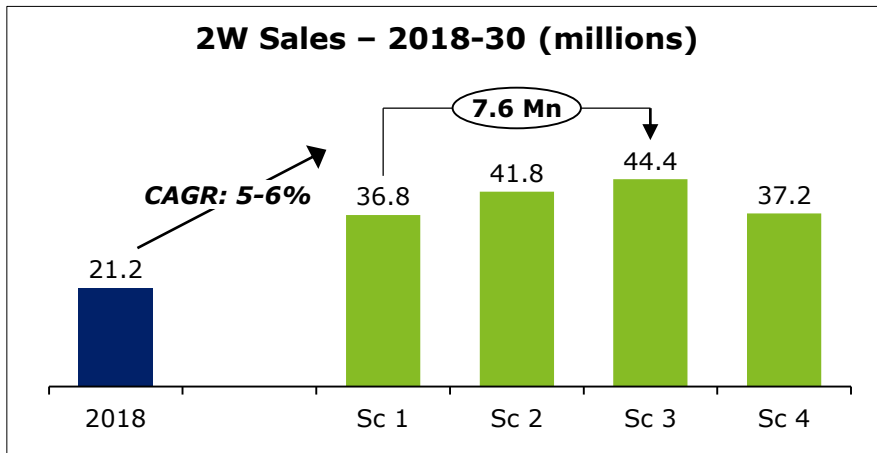
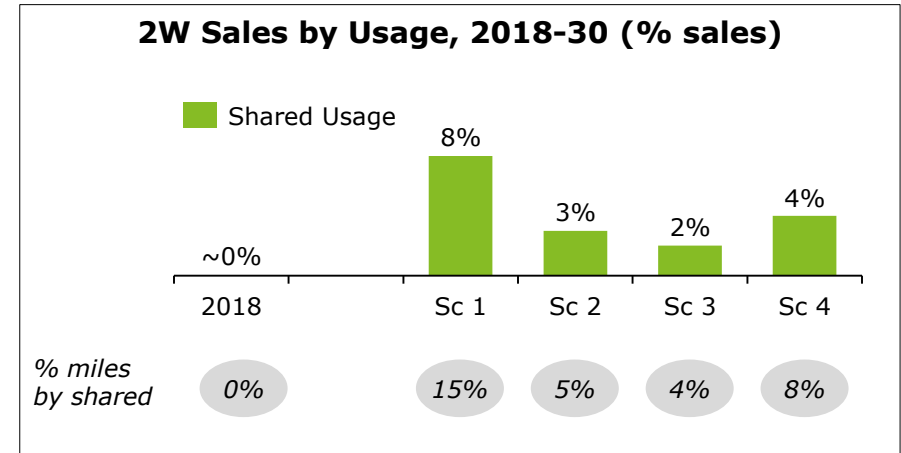
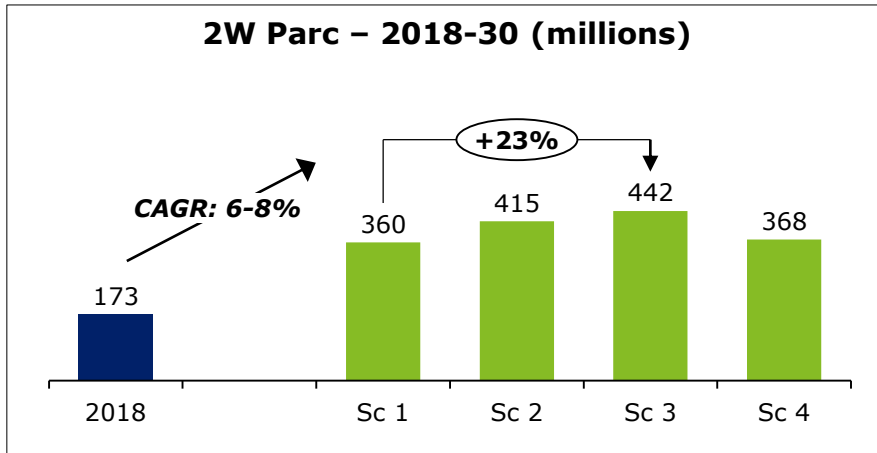
- Step 4: Divide vehicle parc by age to derive sales
- Age: average span of replacement of vehicles

Note: ¹Passenger/ton-kilometer refers to passenger/ton-km pertaining to only road transport; APC, AFC, ADC, and age have all been considered separately for all vehicle types mentioned in Slide 9



Quantifying the Scenarios: Projections – 2 Wheelers

2-wheeler sales for 2030 is expected to vary between 36 to 44 million; application of 2W in shared mobility is expected to pick-up significantly

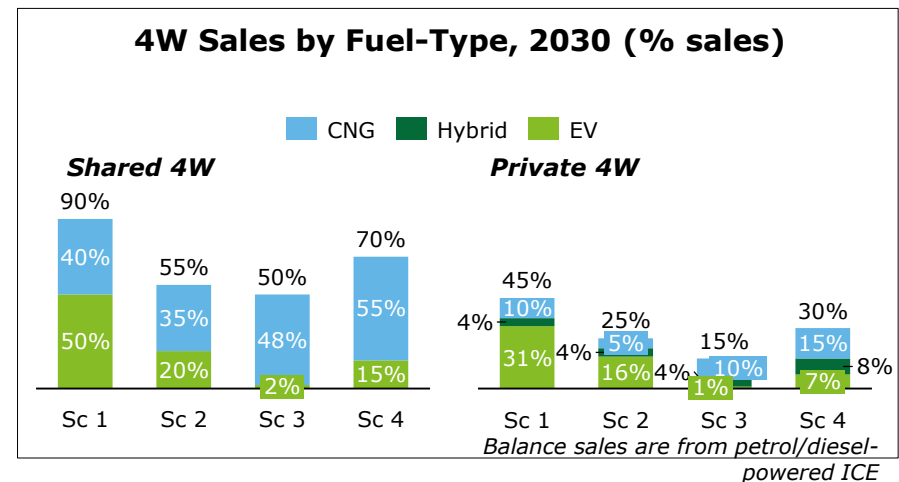
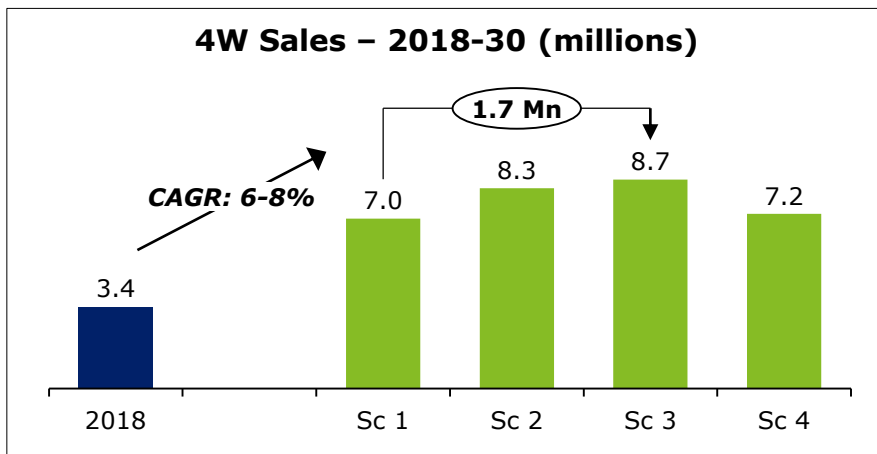
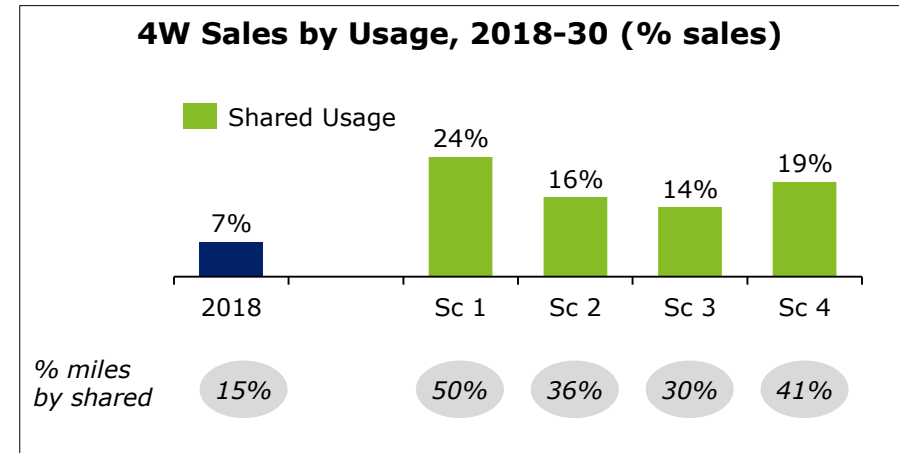
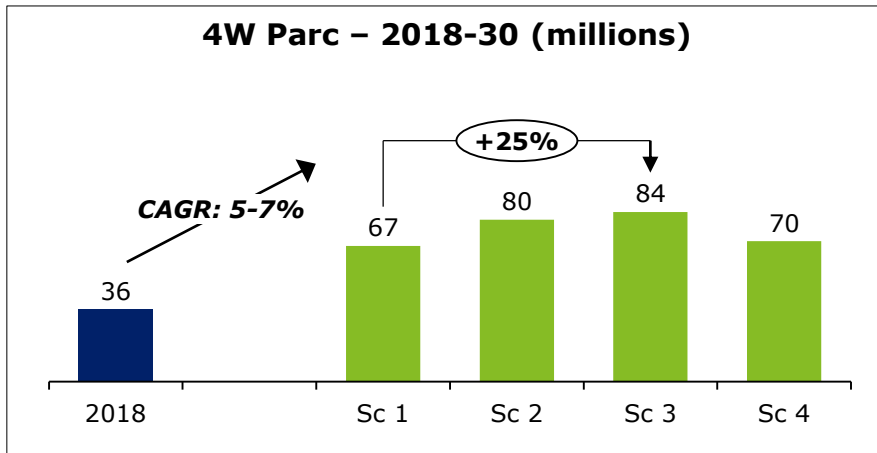


Source: Monitor Deloitte analysis

Quantifying the Scenarios: Projections – 4 Wheelers



4-wheeler sales for 2030 is expected to vary between 7.0 to 8.7 million; sale for shared mobility usage expected to increase 2-3x, with most moving away from petrol/diesel

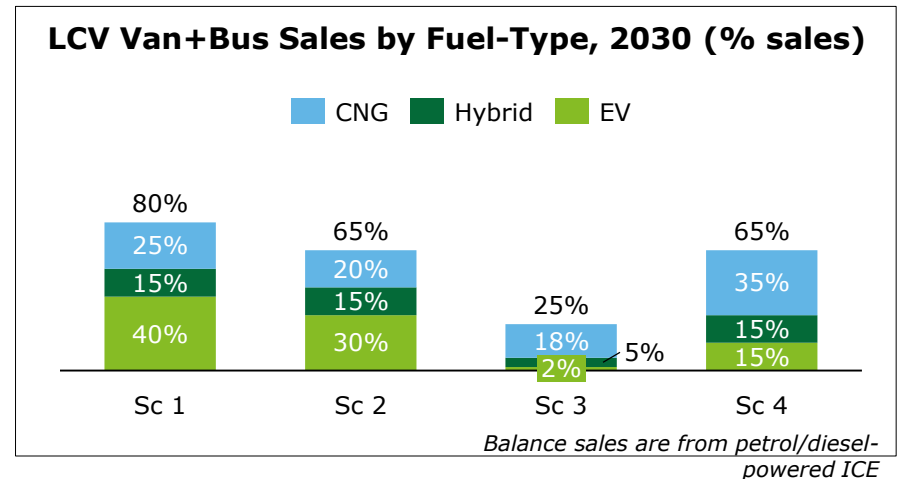
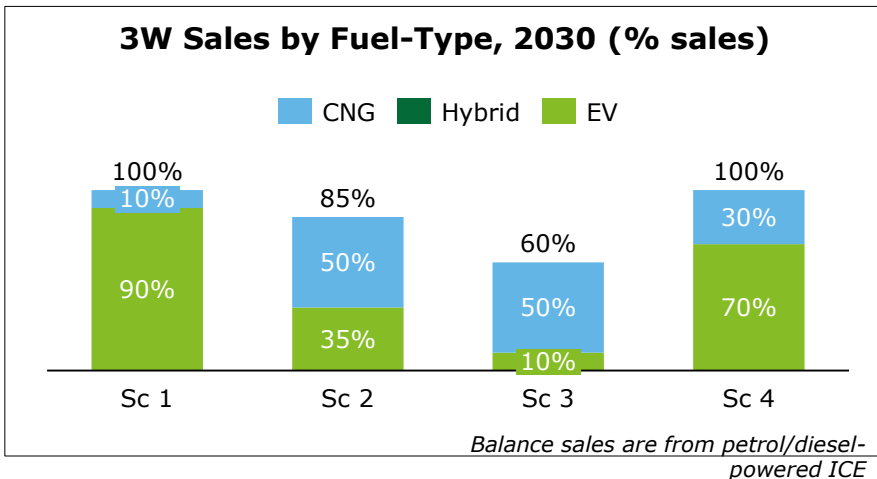
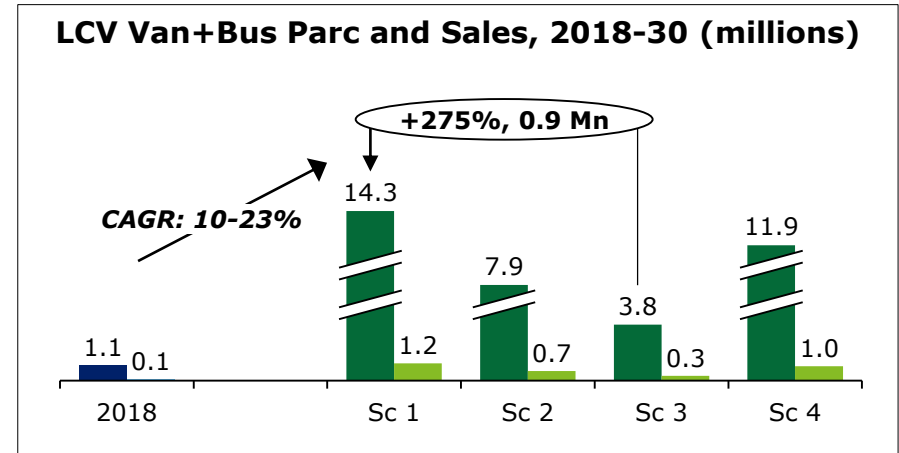
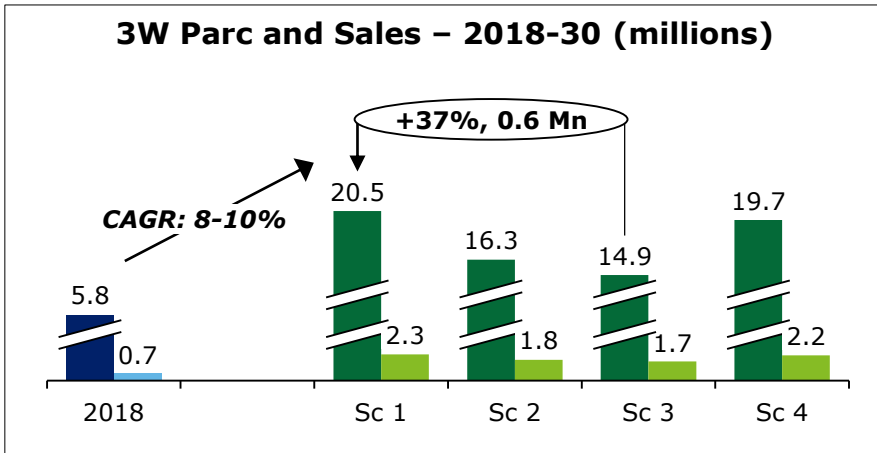


Source: Monitor Deloitte analysis



Quantifying the Scenarios: Projections – 3W, LCV Van+Bus

The push by the government towards shared mobility is expected to drive growth across both these vehicle types; almost entire sales is expected to be petrol/diesel free by 2030 in Sc. 1

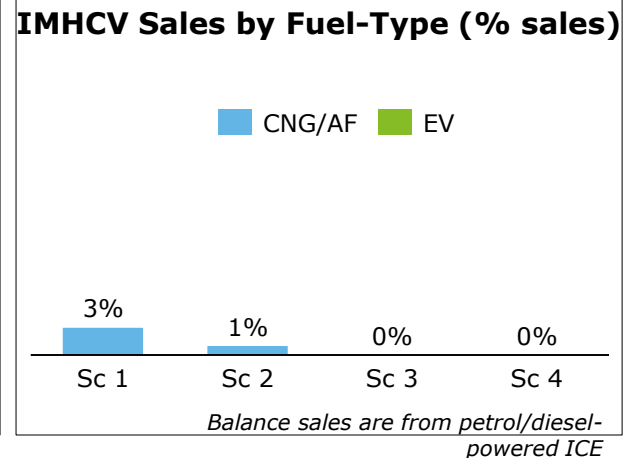
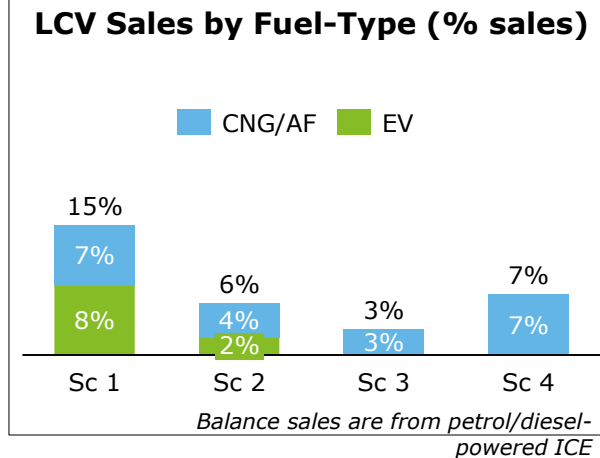
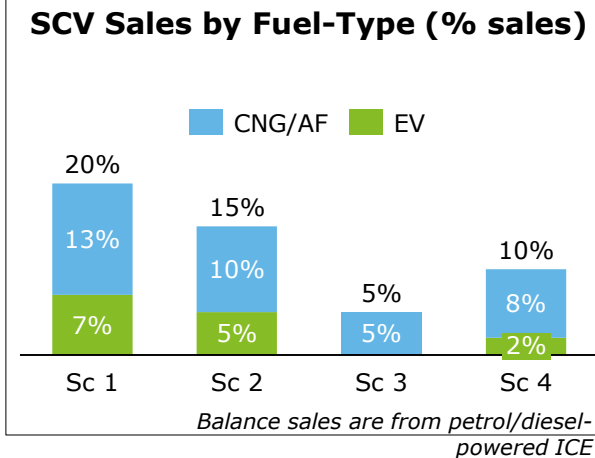
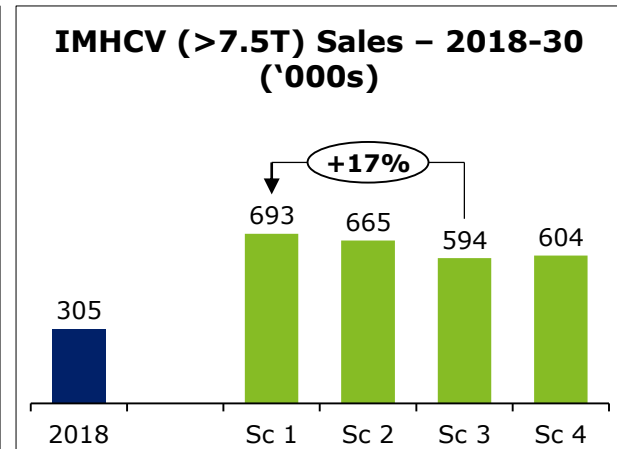
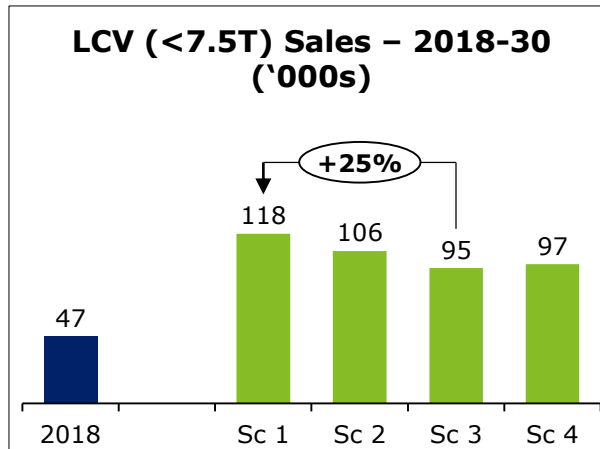
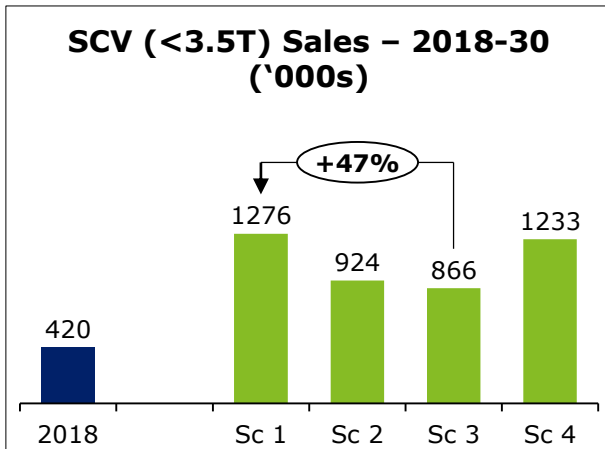


Source: Monitor Deloitte analysis

Quantifying the Scenarios: Projections – Freight Carrying Vehicles



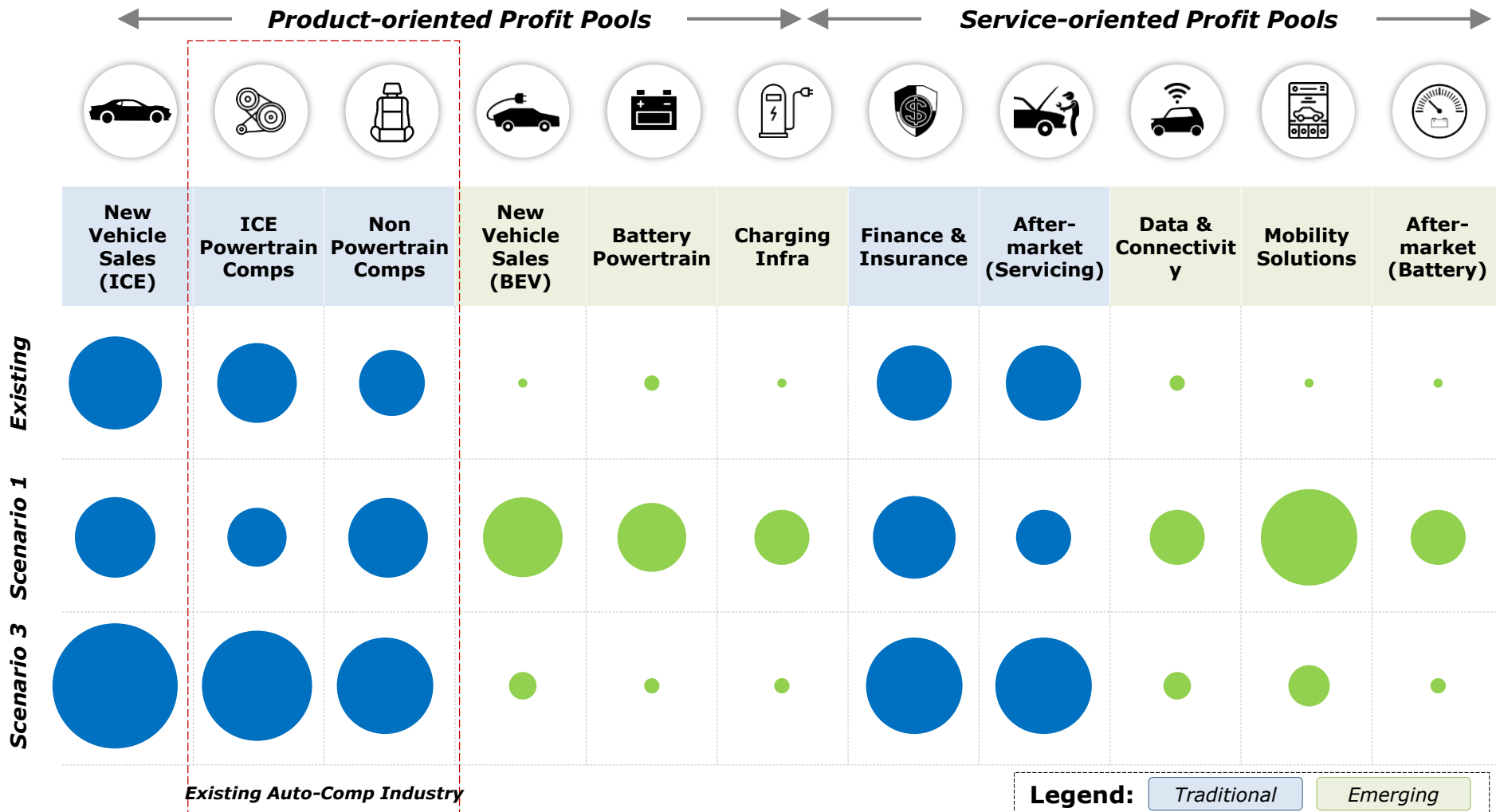
FCV sales are expected to grow to ~1.5-2 million units by 2030, with ~55-60% sales coming from SCVs; petrol/diesel will remain the fuel of choice across types



Source: Monitor Deloitte analysis

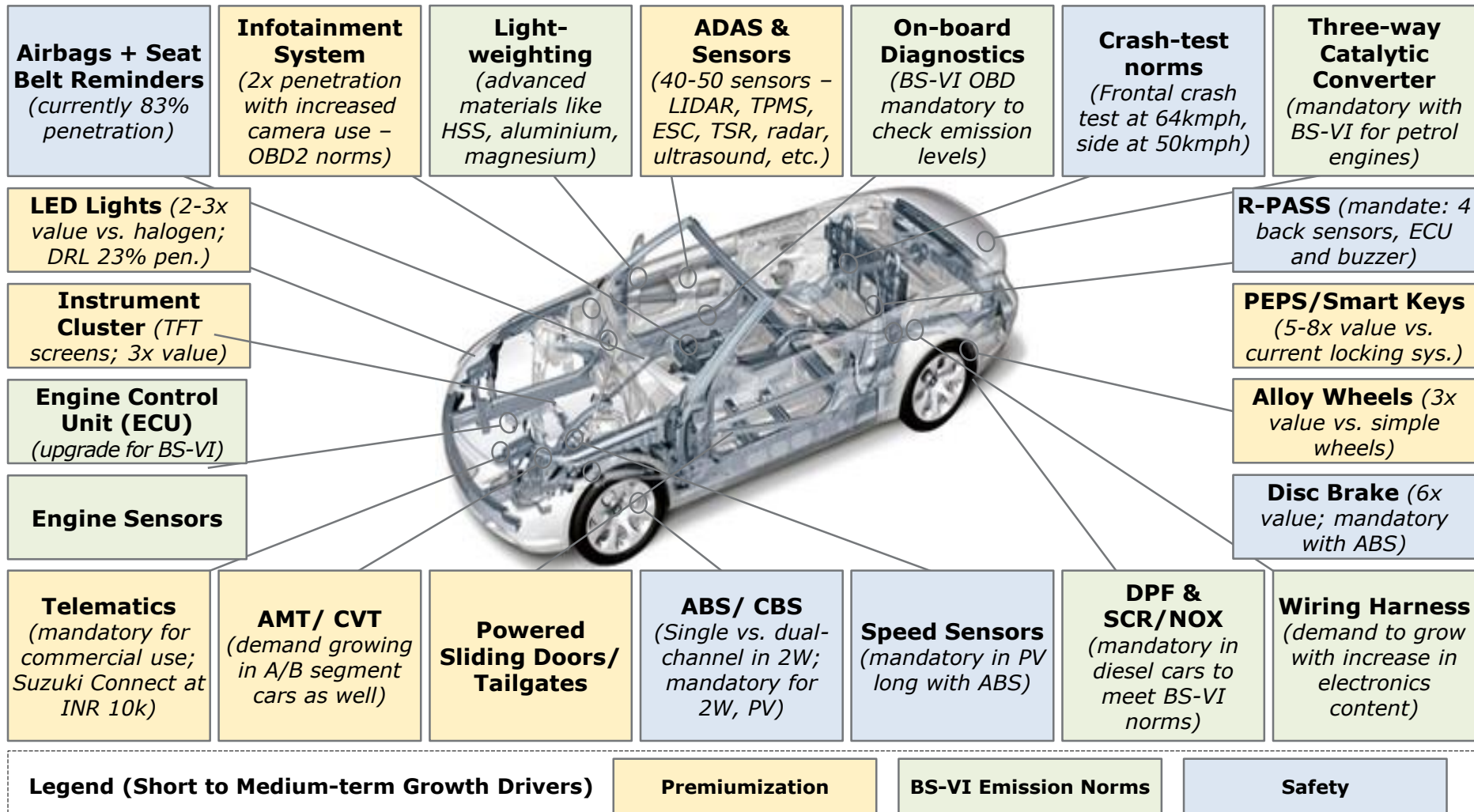
Impact of the Scenarios: Transitioning Profit Pools in the Value Chain

Depending on the scenario that India moves towards, OEMs and ACMs will need to make specific strategic choices to maintain relevance and improve their profitability



Impact of the Scenarios: Opportunities for ACMs (Short to Medium-term)

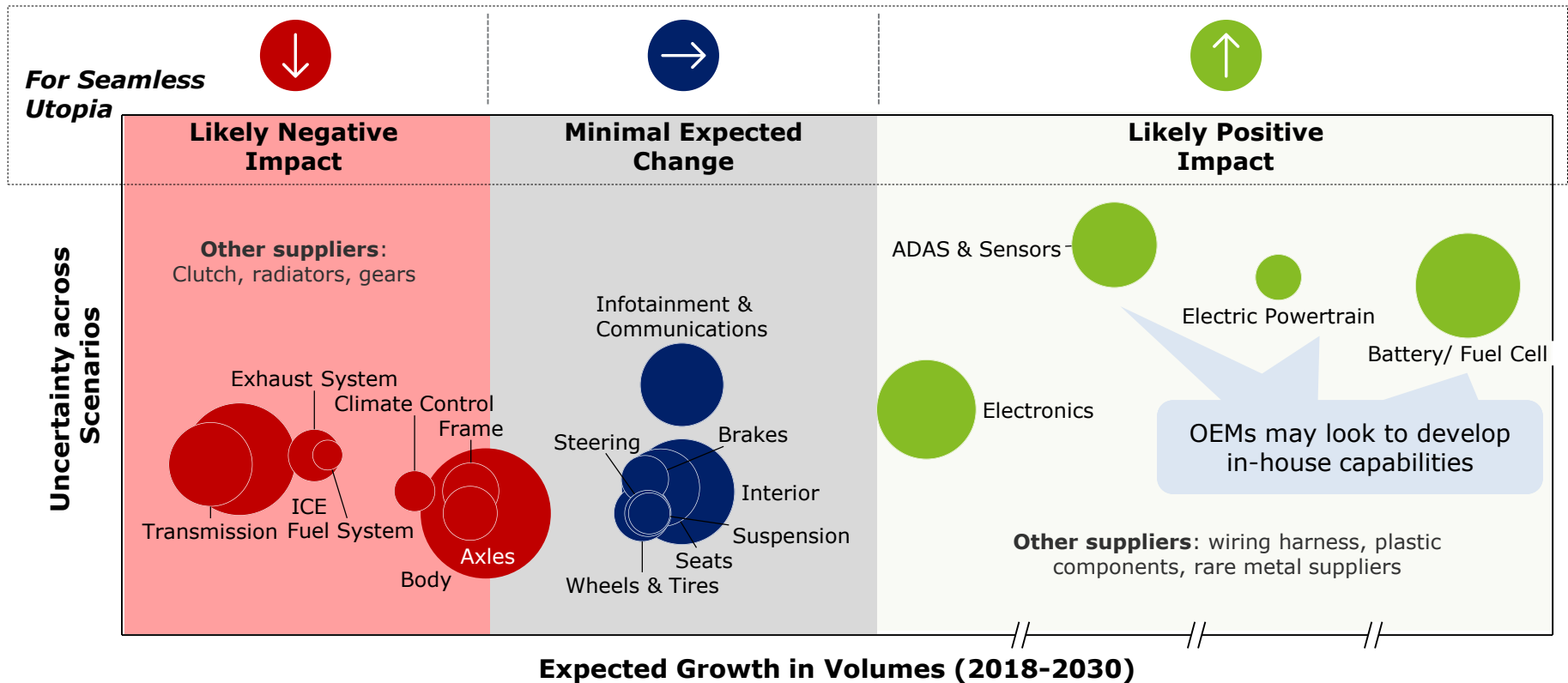
Over the next 3-5 years, the introduction of BS-VI norms, the premiumization of cars, and enhanced safety norms will drive growth across the automotive components' value chain



Impact of the Scenarios: Opportunities for ACMs (Long-term)

In the long-term, ACMs investing in futuristic technologies are likely to succeed; while, ICE and transmission suppliers will see disruption; non-powertrain components will remain relevant, albeit with a lesser share of vehicle value

Expected Growth in Volumes (2018 to 2030) vs. Uncertainty across Scenarios



Bubble sizes indicate the likely relative market volumes 2030

Note: Excluding inflation and aftermarket volumes

Source: Deloitte – The Future of the Automotive Value Chain; Monitor Deloitte analysis

Implications of the Scenarios: Future Growth Levers

Given the impending disruption, ACMs should look to anchor their future growth around four specific levers that are expected to play a significant role



Increase localization, and collaboration

- Invest in **higher indigenous production**, esp. premium products to reduce import bills
- Develop categories that will **contribute more to future vehicle value** (e.g., electronics, safety)
- Encourage **ecosystem partnerships** (e.g., co-create EV plant, connected vehicle platform)

*Driven by Uncertainty:
Govt. Participation*



Play an integral role in increasing content per vehicle

- Invest in designing components with **high value contr.** to EV (e.g., motor, lightweight materials)
- Develop solutions that help **collect, store and analyze vehicle and user data** in real-time
- Develop solutions specific to **shared mobility applications** (e.g., feature-loaded back seats)

*Driven by Uncertainty:
Advancement of Tech.*



Cater to larger parc & faster replacement market

- Provide **latest offerings to existing parc** (e.g., touchscreen, Bluetooth in 2W, LED in 2W)
- Leverage increasing share of **used car sales** to develop **differentiated after-market solutions**
- In case of **scrappage** policy, **plan for low cost, high volume production** to support economics

*Driven by Uncertainty:
Both (Govt., Tech)*



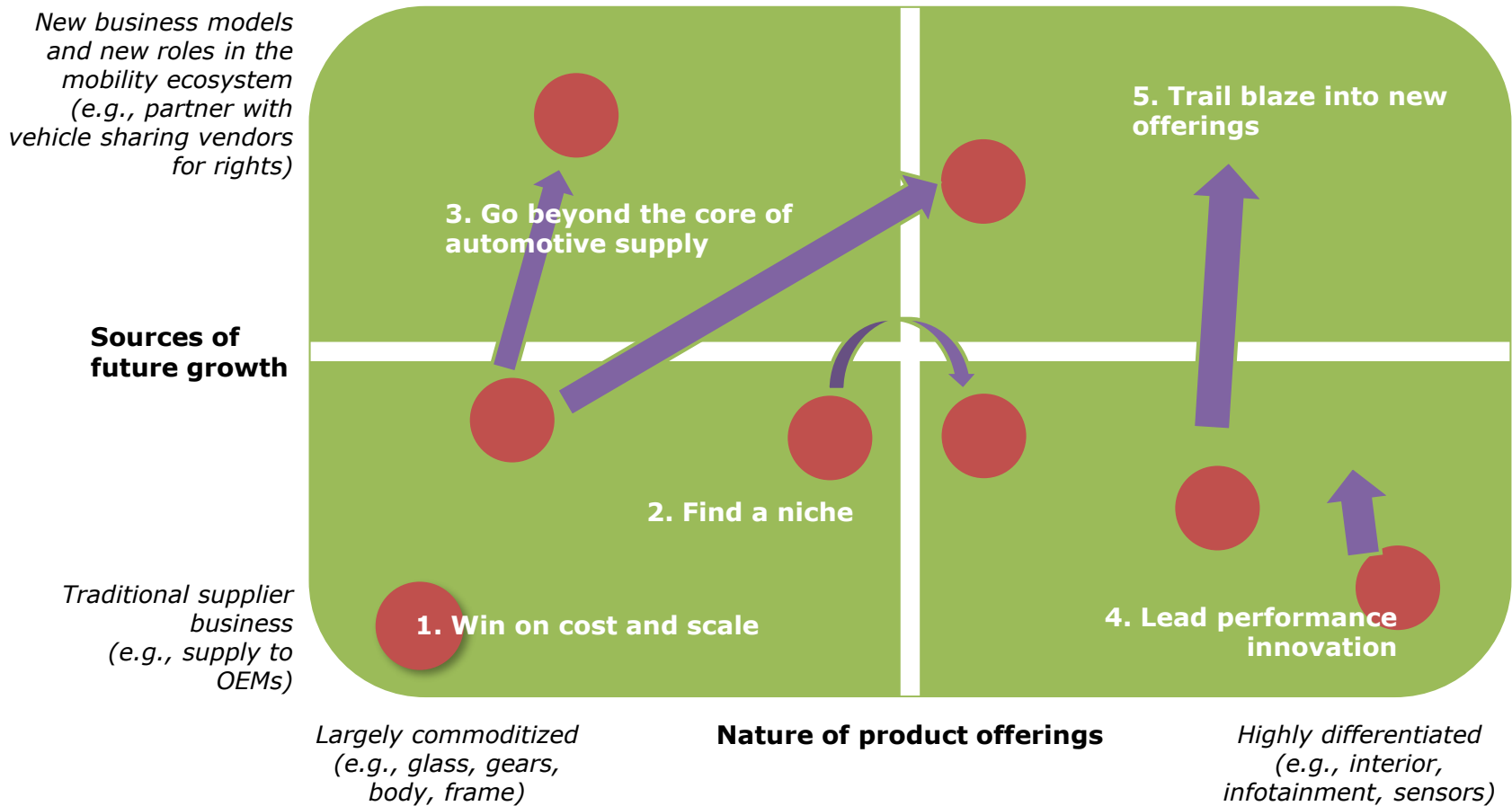
Pick-up in the share of exports

- Focus on increasing revenue share of exports by **overcoming gap in quality and tech standards, and regulations**
- Digitize processes to **achieve cost leadership** globally, esp. in **premium products** (e.g., DRL in PV and CV, keyless entry, ABS in 2W, etc.)

*Driven by Uncertainty:
Both (Govt., Tech)*

Imperatives from the Scenarios: Strategic Plays for ACMs to Succeed

In light of the likely transformation of industry structure, suppliers need to evaluate their strategies based on the nature of their offerings and their future aspirations for growth



Facilitating the Future of Mobility: Role of the Regulator

The Government, which is the regulator and most critical stakeholder in the value chain, must look to achieve four major objectives as it embarks on this journey

Driving a new age of sustainable growth...

Facilitate Economic Growth

- *Build adequate and integrated infrastructure*
- *Develop seamless, adequate and accessible public transportation*
- *Optimize and decongest peak-time load and requirement*



Ensure Clean & Sustainable Future

- *Develop and promote usage of sustainable technologies*
- *Drive adoption of shared mobility solutions*
- *Develop seamless, adequate and accessible public transportation*



Enable Indigenization of Auto Ecosystem

- *Phased adoption of EVs to enable capability development across the auto value chain*
- *Develop R&D centers to build India into an innovation hub for the future of mobility*



Preserve and Create Employment Opportunities

- *Develop best-in-class domestic talent with expertise across the auto value chain*
- *Drive widespread adoption of shared mobility and public transportation*



... while preserving our legacy & relevance



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