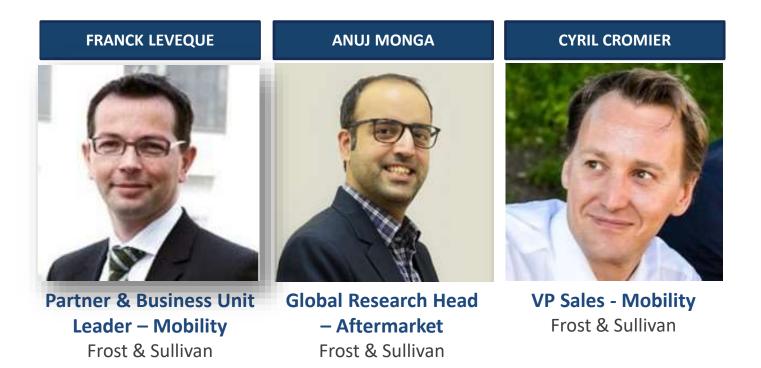


COVID-19: Identify Growth Opportunities Across Automotive and Automotive Industry Verticals



FROST & SULLIVAN TEAM TODAY



FOCUS POINTS

- Changing business & economic scenario
- Automotive annual vehicle production forecast 2
- Vehicles sales, vehicle park development (incl. age and 3 mileage)
- 10min

OEM mitigation plans 4

5

6

Identifying growth opportunities across automotive industry verticals

- * New/used vehicle sales digitalisation and financial services
- Connectivity & health wellness & wellbeing
- * New mobility solutions
- Fleet & leasing dynamics
- Vehicle electrification

Impact and opportunities in the Automotive Aftermarket

- F&S scenarios for the global aftermarket
- * Impact on key product lines

* Post COVID key trends

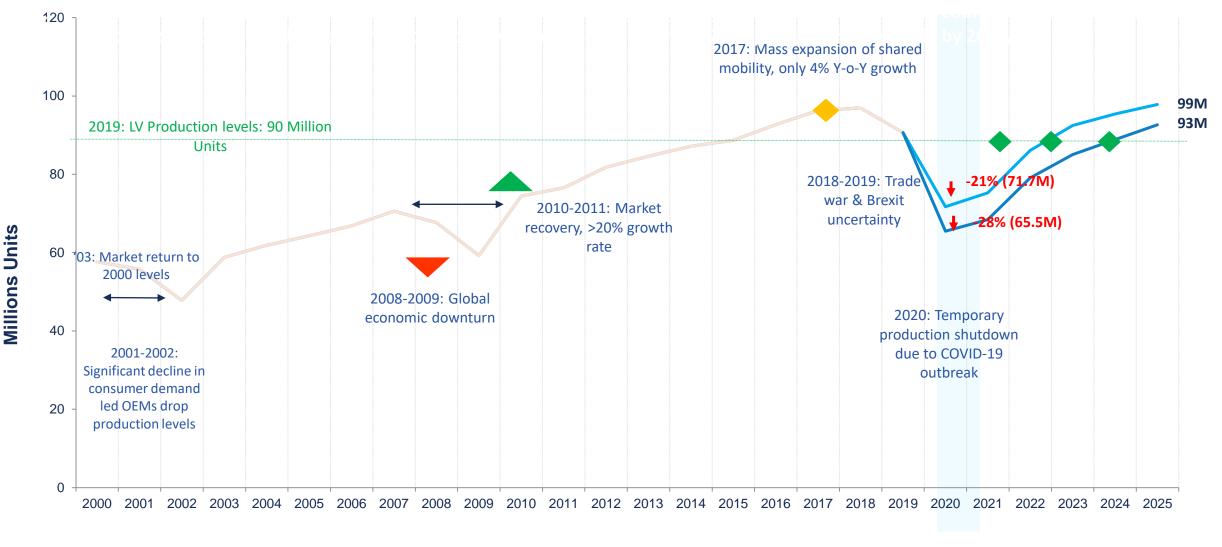
- Health, wellness & wellbeing products in the Aftermarket
- * 2020 outlook by region
- Growth opportunities
- COVID-19 Impact on urbanisation 7
- Strategic considerations 8
- How F&S can help you? 9
- **Open Discussion**



8min

20min

ANNUAL LIGHT VEHICLE PRODUCTION GLOBAL TO DECLINE BY ABOUT 21%



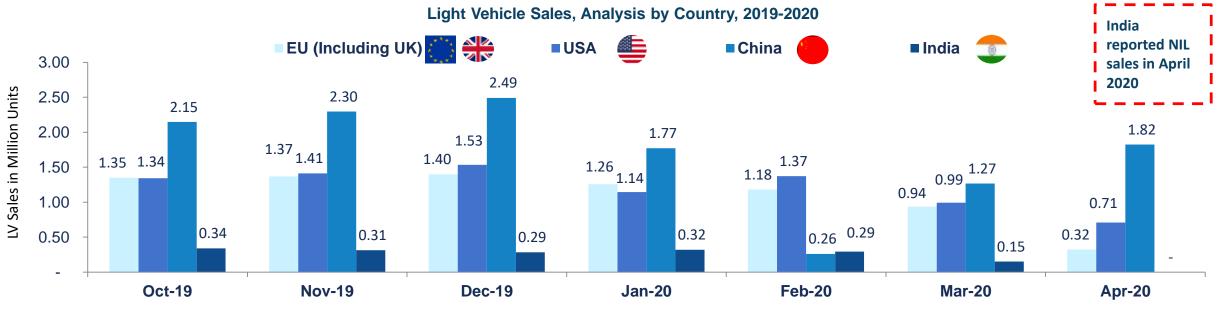
-Global Emergency Scenario

Note: Light Vehicles include Passenger Vehicles and Light Commercial Vehicles with GVWR of up to 6 MT

LIGHT VEHICLE SALES IN KEY COUNTRIES – OCT 2019 TO APRIL 2020



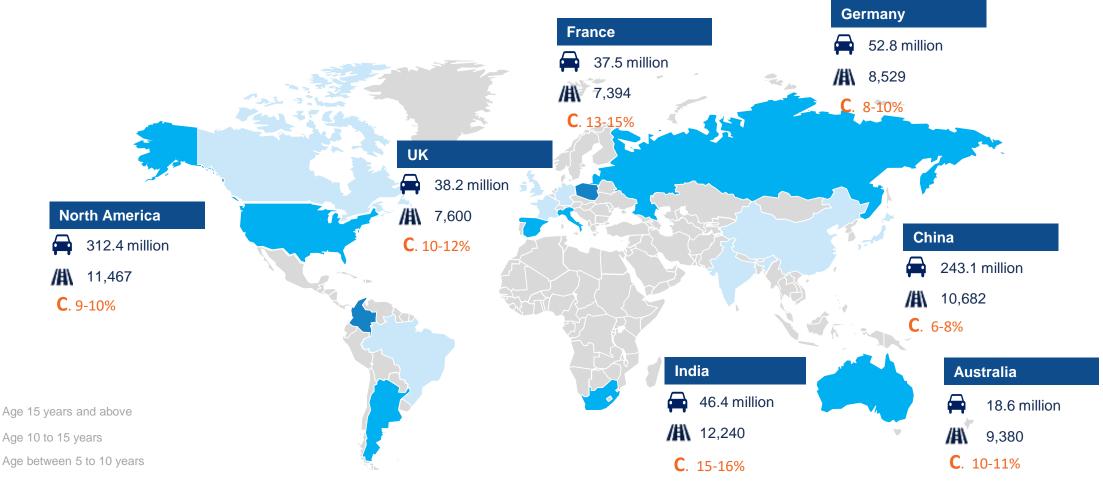
EU car registrations saw their worst drop in April as most dealerships were closed amid strict lockdown measures. Southern Europe was hit the hardest with Italy car registrations down by 97.6%, Spain by 96.5% as both countries struggled with the highest levels of COVID-19 cases in Europe.

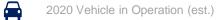


SPAIN	ITALY	FRANCE	υκ	GERMANY	USA	CHINA
 Some factories resume production. NSC: workforce temp lay-off 	 Some factories restart; NSC: cash for retailers Active service area; daily sanitization of all areas 	 Part time work at Renault, Nissan, PSA. Showrooms closed, Maintenance service active 	 Most OEM/NSC product teams operating as BAU. 50% of dealers equipped to support online sales. 	 Some OEMs resumes production. Dealerships have been allowed to reopen. 	 Many OEMs including Big 3 resume production. Online sales channels activated. 	 Production has resumed. The country is providing cash to car buyers to boost sales.

Note: Light Vehicles include Passenger Vehicles and Light Commercial Vehicles with GVWR of up to 6 MT

AGEING OF EXISTING VEHICLE WILL CUSHION SOME OF THE BLOW FROM REDUCED ANNUAL MILEAGE ACROSS MOST MARKETS





Average Annual Miles Travelled (2019)

C. COVID Mileage Decrease

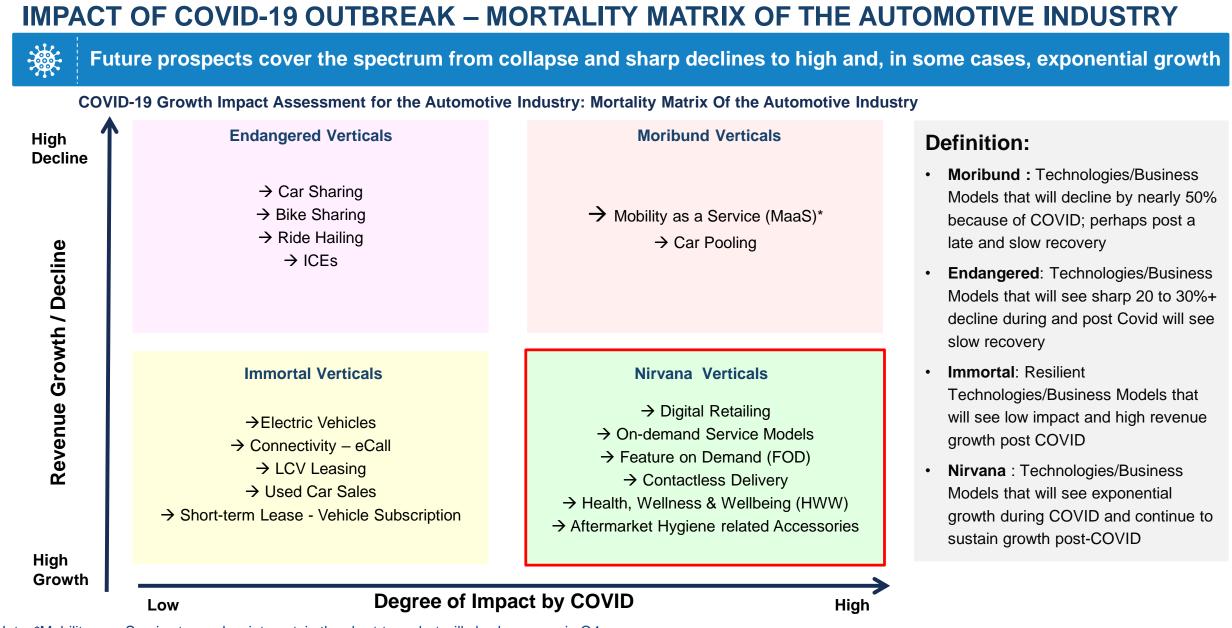
Note: Arrows represent mileage trends Pre-COVID. All figures are rounded. The base year is 2019. Source: Frost & Sullivan

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OEMS MITIGATION STRATEGY TO COVID : OEMS WORKING TOWARDS REDESIGNING/ REVISITING SUPPLIER SOURCING, PRODUCT DEVELOPMENT AND DELAYING LAUNCHES

Production	Product and R&D	Sales	Corporate
Freeze smaller batch lines	→ Reduced Variants / Trims	→ Virtual showrooms & Online customer journey	→ Exceptional employee care protocol
Outsource some production	→ Shift to low-spec vehicles		→ Draw extended credit lines.
		→ Attractive credit & financing options	→ Target Vulnerable Co.'s (M&A)
White labelling /Licensing Platform	→ Delayed new product launches		
		→ Drive UC 'Certified Programs'	
Joint component sourcing & pooling	→ Engineering insourcing		
	→ Delay Autonomous L4 development	 Distinctive customer management systems. 	
 'GLocal' supply chain strategies 			
	→ Car as a Vehicle of Health (HWW) services	→ Pay freeze/ redundancy, gig economy	
Strategic use of 3D printing	3CIVICE3	workers.	
	→ Digital platforms and in-car		
Automation interest rises	connectivity	→ New remote working technologies	

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COVID 19 – DIGITISATION CATALYST FOR AUTOMOTIVE RETAIL AND AFTERSALES

Until recently, most OEMs and dealers viewed digitisation as a 'Plan B', a 'Nice to Have'. As of April 2020 it is the ticket to survival, creating new dimensions of customer engagement

	Inspire	ર્ડ્ડે	Choose/ Configure		Purchase	Î	Service/ Aftersales
	Online Entry						
	Digital Marketing & Social Media - Data Driven Targeted Advertising		ve Websites, Web 3D Configurator, Finance r, Virtual Store, Scheduling Test Drive, Virtual Assistance/Chatbots		e, Insurance and Vehicle Delivery @ Doorstep		
Tesla Wa	ay" Contraction					Over the Air Updates, Digital Vehicle Assistance, Prognostic Tools, In-Vehicle Parts and Service Purchase Options, etc	
			e: Digital Engagement Power Wall, Tablets, Simulators, VR Test Drive, etc				
16	"Audi City Way"		enius, Financial Advisor, Virtual Assistants	₽	Purchase Options		
1		Custon	ner ID, Gamification, Robots, AI, AR/VR	••	Instore		
	80% to 100% drop in physical isits to showrooms creates the "Out of the Box Way" –	Digital support: Video/Voice with dealer/sales associate (Telephone, Zoom, Whatsapp, Facetime, etc): personalised video walkthrough, vehicle valuation via video, over the phone financial consultation, etc				Mobile vehicle servicing, auto care concierge services, online collectio & delivery booking option, DIY eCommerce & DIFM eCommer	
En	mpowering Dealers with Digital Tools		o visit: 30 minutes personalised shopping slo new safety protocols (new gloves, pens, sani			for pa	rts and service, servicing for 5 years & older vehicles

"

Electric V

ONLINE USED VEHICLE RETAIL: ECOMMERCE MARKETPLACE PLATFORMS

With a broader reach than any other traditional channel, used car marketplaces are emerging as high potential business models

	Basic C2C, B2C Marketplace	Traditional Bricks & Clicks Marketplace	Broker Marketplace	Online car retailer	Aggregators	Big boys arena
	Platform connecting sellers & buyers	Platform of UC/NC dealers, leasing companies, car rental companies, OEM UC programme	Platform to support UC sales of retail customers	Online UC sales platform	Connecting B2B and B2C dealers & wholesaler	Traditional b2c marketplace
Physical store	\otimes	\checkmark	\otimes	\bigcirc	\otimes	\otimes
Stocking facility	\otimes	\checkmark	\bigotimes	\checkmark	\otimes	\bigotimes
Direct purchase of UC	\otimes	\checkmark	\bigotimes	\checkmark	\otimes	\otimes
Sale OR listing of UC	UC Listing	UC Sale	UC Listing	UC Sale	UC Listing	UC Listing
Revenue source	Subscription	resale margin from UC sales + Commission from value add	Commission from UC sale & value adds	resale margin from UC sales + Commission from value add	Subscription	UC Sale/ Subscription
Avg. vehicle age	All age group	Majority young	Majority young	Majority young	All age group	All age group
Photo quality	Customer/ dealer photo	High quality with background	Photoshop / High quality photo	High quality with background	High quality with background	Customer/ dealer photo
Business segment	C2C and B2C	B2B and B2C	C2C	B2C, C2C	B2B, B2C	C2C, B2C
		Das WeltAuto		InstaMotion	CarGurus'	

Note: these are Frost & Sullivan classifications

Connectivity

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DIGITIZING THE VEHICLE PARTS AND SERVICE BUSINESS

Worldwide aftersales revenues are expected to grow from about 29Bn to 78Bn by 2025. Growth is driven primarily by increased online sales of parts & accessories and innovative servicing business models



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<u>GROWTH OPPORTUNITIES IN CONNECTIVITY</u> — PAY-AS-YOU-GO FEATURES WILL START SEEING HIGHER POTENTIAL, POST COVID

Connected Services to be Used as a 'Marketing Tool' to Boost Vehicle Sales – Opportunity to Connect more with Customers Need for 'Biometrics and Associated services' (Eg: Health Wellness and Wellbeing Services) Need-based 'Feature-on-Demand (FoD)' Services to Take off – Activate/Pay Only When Used

Leasing

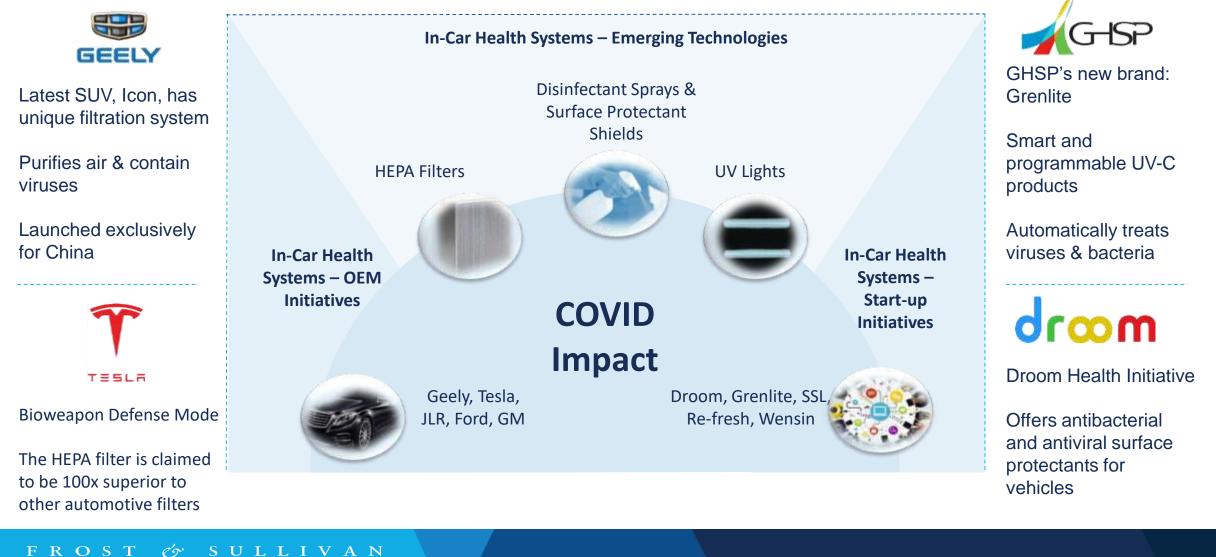






Leasing

'<u>HEALTH, WELLNESS, & WELL BEING</u>' IN CAR CAN BE DEFINED AS A MYRIAD OF HEALTHCARE SOLUTIONS AND WELLNESS FEATURES FOR DRIVERS AND PASSENGERS



GROWTH OPPORTUNITIES IN VEHICLE LEASING & RENTAL — PRODUCT FLEXIBILITY, USED CARS AND LCVS TO BRING MORE BUSINESS THAN TRADITIONAL LEASING PRODUCTS

Increased Demand for Contract Flexibility – 'Vehicle Subscription'



Growth in 'Used Car' Leasing

Leasing

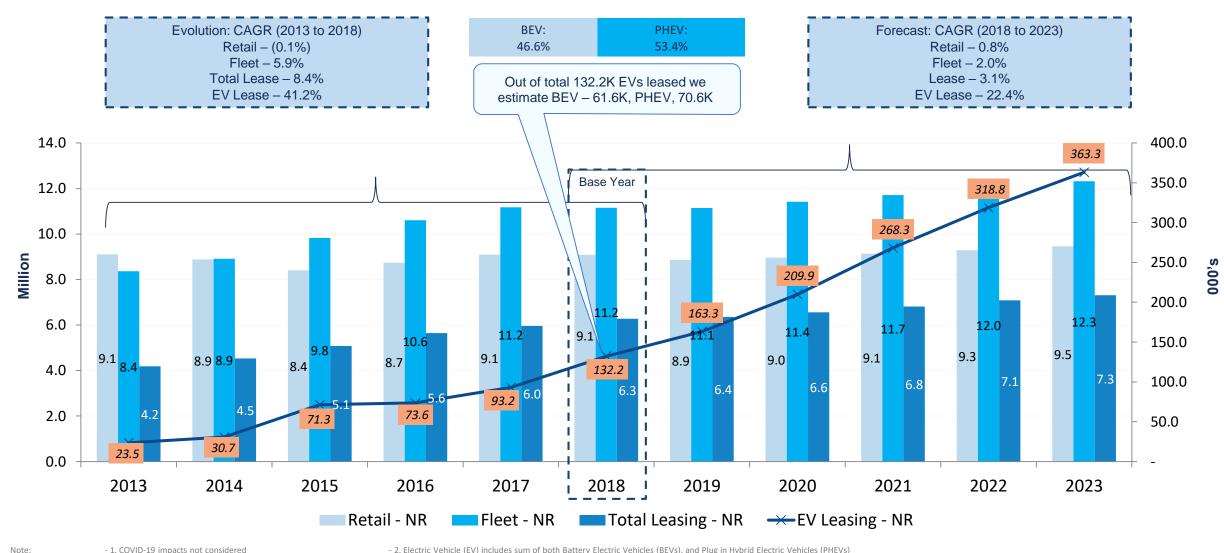






EUROPEAN FLEET MARKET – EV LEASING ANALYSIS

Reliability in technology, availability of brand options and affordable pricing to drive PHEV demand for next 5 years



- 1. COVID-19 impacts not considered - 3. EV leasing does not include B2C business

Spain, Sweden, Switzerland, Turkey, Ukraine, Uk

- 2. Electric Vehicle (EV) includes sum of both Battery Electric Vehicles (BEVs), and Plug in Hybrid Electric Vehicles (PHEVs)

- 4. Data represents sum of EU19: Austria, Belgium, Czechia, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Norway, Poland, Slovakia,

Source: Frost & Sullivan

<u>GROWTH OPPORTUNITIES IN SHARED MOBILITY</u> — SINGLE OCCUPANCY SHARED MOBILITY TO BOUNCE BACK STRONGER THAN OTHER SHARED MOBILITY MARKETS

'Bike Sharing' to Increase in the Shortterm

Fleets to be 'Repurposed for Doorstep Delivery of Essential Goods'

'Single Occupancy Mobility Modes' to Make Rapid Recovery Evolution from Single Shared Mobility Apps to Mega Apps -Continue to 'Diversify Service Offerings'

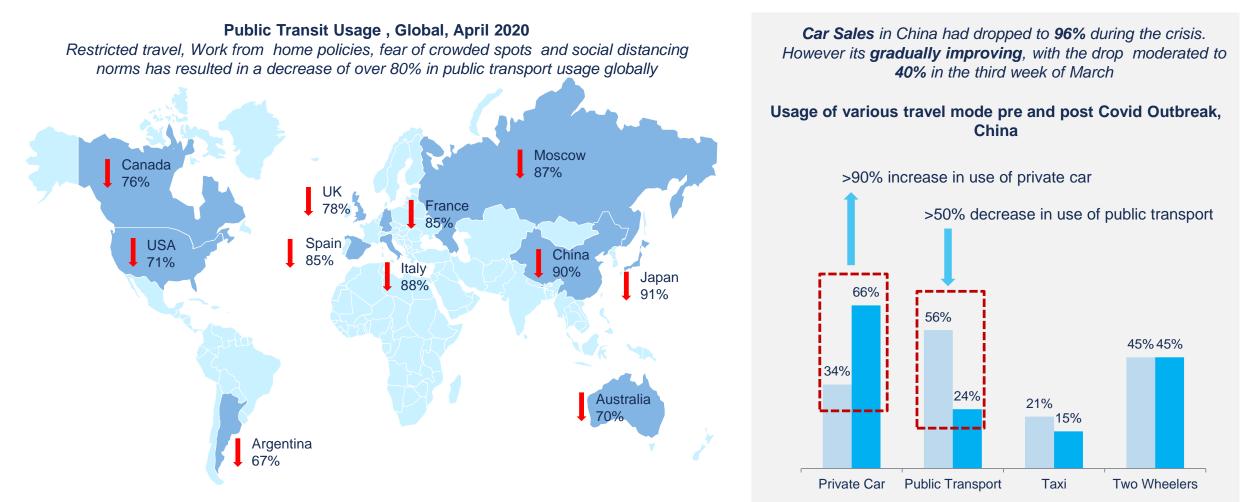








<u>COVID-19 TO REDESIGN URBAN MOBILITY IN CITIES – FEAR OF THE CONTAGION PUSHING</u> PEOPLE AWAY FROM PUBLIC TRANSPORT TOWARDS PRIVATE CAR USAGE



People deem personal vehicles to be more safe than public transport; they are also likely to to avoid multiple occupancy shared mobility modes like Ridehailing, Ridesharing

Before Covid Outbreak
After the Covid Outbreak

Shared Electric V

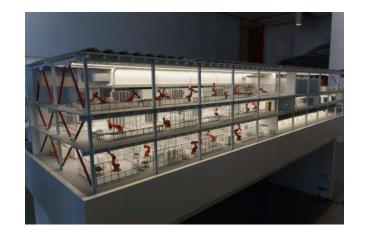
<u>GROWTH OPPORTUNITIES IN ELECTRIC VEHICLES</u> — ELECTRIC VEHICLE SALES WILL NOT BE IMMUNE FROM THE PANDEMIC- HOWEVER PROVIDES MORE ATTRACTIVE GROWTH OPPORTUNITIES VS ICE

Acceleration of New OEM Co-operation Models Joint Manufacturing, Licensing of skateboard platforms

Incubator Strategy One Gigafactory for multiple Battery Suppliers Opportunity With 'Broader EV Ecosystem Products' Charging Stations, Home Energy Products

Leasing

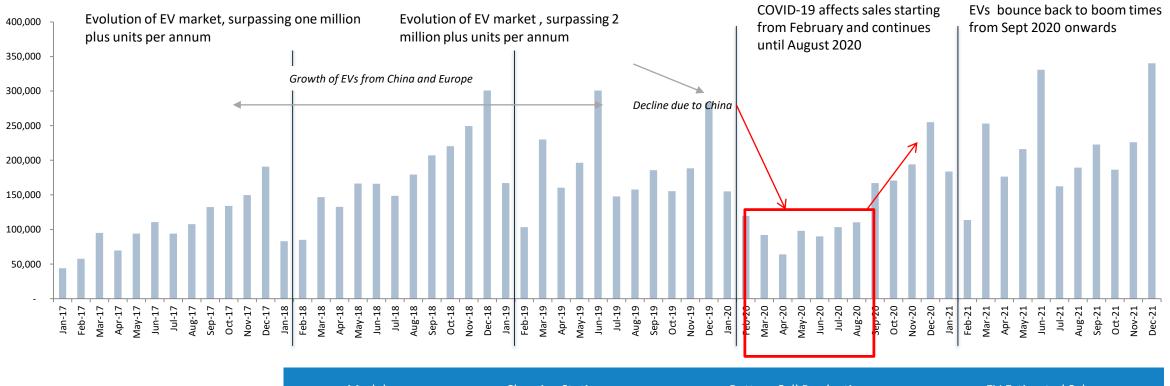






DESPITE AN IMPACT ON ELECTRIC VEHICLE SALES IN THE SHORT-TERM, RECOVERY IS LIKELY TO BE SWIFT DUE TO MORE LOCALIZATION OF FUTURE SUPPLY CHAIN

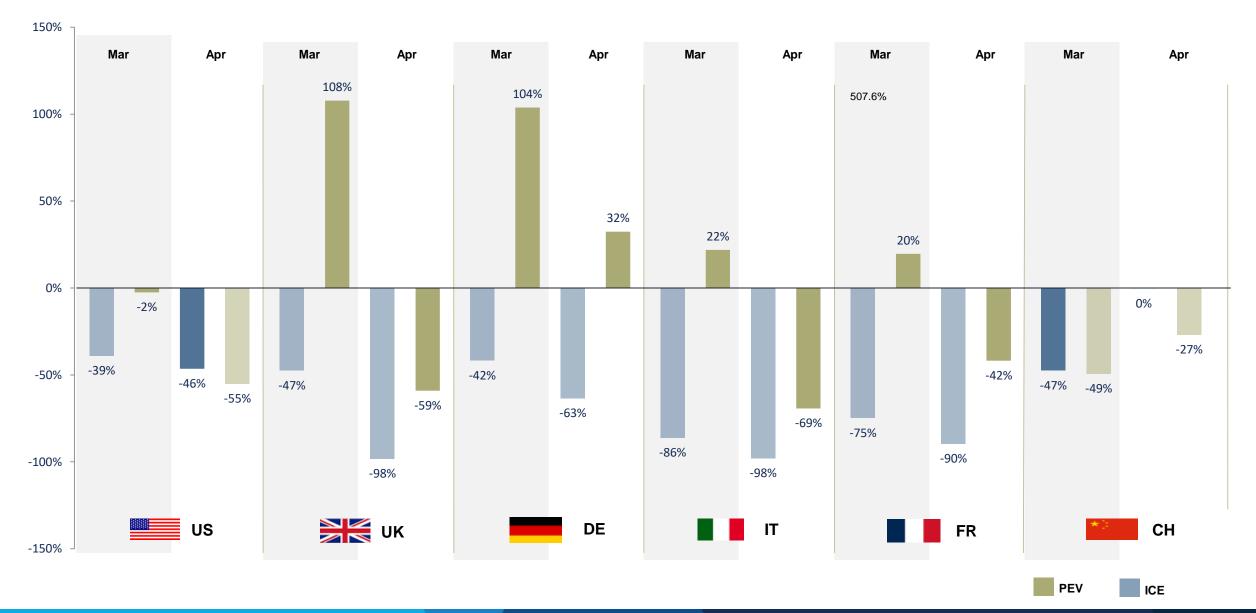
Impact of COVID-19 : Electric Vehicle Sales by Month, Global, 2017-2021 (estimated)



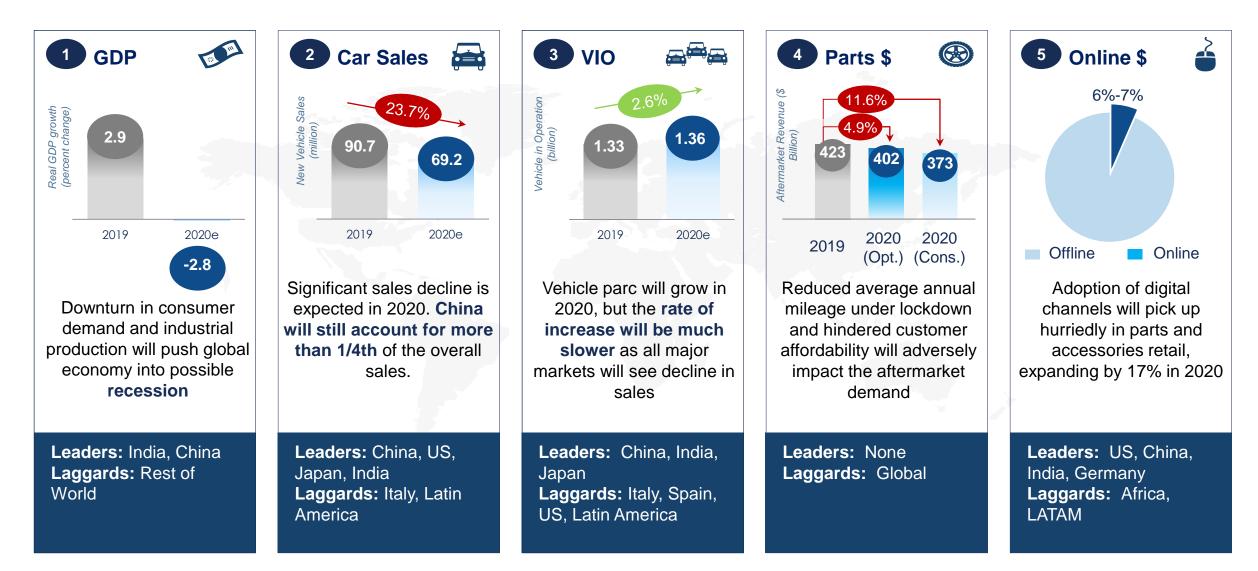
	Models	Charging Stations	Battery Cell Production	EV Estimated Sales
2020 Est. (without COVID Impact)	35	500,000+	108,000 MWH	~2.5 Million
2020 Est. (with COVID Impact)	28	470,000+	100,000 MWH	~2.3 Million
IMPACT	MEDIUM	LOW	LOW	LOW

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APRIL 2020: EV ROBUSTNESS CONTINUES



2020 IN NUMBERS — KEY PREDICTIONS



2020 IN NUMBERS — KEY HIGHLIGHTS

On-demand Services on the Rise	2 Consolidation throughout the Value Chain	3 OES to Double down on Aftersales Connect	Aftermarket Business Opportunities	5 ADAS and related service as growth driver
	$\overline{\uparrow\uparrow}$	RECORD		
Adoption of on-demand repair services to be fuelled by fear of contamination at workshops, thereby need for contactless options	Under severe stress from financial challenges, small to medium sized channel participants (suppliers/resellers/service providers) will be acquired or merge with bigger entities	Dwindling new vehicle sales and idle manufacturing lines, OES channel is expected to proliferate the aftermarket with competitive offerings	Relatively upbeat EV sales and expansion in related parc will create opportunities for battery refurbishment , while newer demand pockets to rise from hygiene and sanitization needs	Increasing penetration of ADAS vehicles in global VIO - particularly in Europe and NA - will create growth in service categories such as sensor recalibration
Hotspots: China, US, Western Europe	Hotspots: Global	Hotspots: China, US, Western Europe, India	Hotspots: US, Germany, Spain, Italy, China	Hotspots: US, Western Europe, China Laggards: India, Africa, Latin America

Source: Frost & Sullivan

GLOBAL AFTERMARKET REVENUE MARKET SIZE POTENTIAL

Tires, maintenance related parts and accessories will be the worst hit categories in the replacement aftermarket

			Optimistic S Shaped R		Conservative Scenario- L Shaped Recovery		
		2019 Revenue (\$ Billion)	2020 Revenue (\$ Billion)	Growth Rate (2019-2020)	2020 Revenue (\$ Billion)	Growth Rate (2019-2020)	
	Tires	\$90.7	\$84.4	(6.9%)	\$78.4	(13.6%)	
	Batteries	\$17.2	\$16.6	(3.0%)	\$15.5	(9.7%)	
	Brake Parts	\$26.4	\$25.2	(4.5%)	\$23.4	(11.4%)	
	Filters	\$12.6	\$12.1	(3.5%)	\$11.3	(9.7%)	
	Collision Body Parts	\$39.8	\$38.4	(3.4%)	\$36.4	(8.5%)	
	Starters and Alternators	\$8.7	\$8.3	(4.5%)	\$7.7	(11.4%)	
\$.	Lighting	\$7.2	\$6.8	(4.7%)	\$6.3	(12.0%)	
	Exhaust Components	\$9.9	\$9.6	(3.0%)	\$8.9	(10.5%)	
and the second s	Spark Plugs	\$3.3	\$3.1	(5.0%)	\$2.9	(11.9%)	
$\bullet \bullet \bullet$	Others*	\$206.9	\$196.9	(4.6%)	\$182.5	(11.6%)	
	Total	\$422.5	\$401.7	(4.9%)	\$373.4	(11.6%)	

*Others include steering system hard parts, Remanufactured engine and transmission, remanufactured rack and pinion steering gear, Heating Ventilation and Air Conditioning (HVAC) and engine cooling components, light vehicle exhaust emission control systems, fuel-delivery systems, engine control units, ignition parts, automotive sensors, ignition wire sets, fuel pumps, selected automotive remanufactured pumps, sports compact under hood components, belt, hoses, gaskets and seals, battery, carburetor, gauge, and internal engine hard parts.

Note: All figures are rounded. The base year is 2019 For more information on scenario considerations, click here.

High

Decline

Low

Source: Frost & Sullivan

Growth

Neutral

HEALTH WELLNESS AND WELL-BEING PRODUCTS FOR IAM

Mann+Hummell: Cabin Air Filter



Purpose: Filtered air flow inside the vehicle cabin

Benefits: FreciousPlus line of cabin air filters blocks PM2.5 particles and also blocks harmful gases and unpleasant smells from entering inside the cabin

Opportunity Market: Among the fastest growing filtration category product in the aftermarket and can find quicker adoption both OE installations and IAM

WAIglobal: Vehicle Disinfectant Kit



Purpose: Comprehensive Vehicle Disinfection Solution

Benefits: Serves vehicle sanitization needs- particularly useful for shared mobility related applications and vehicles associated with fleets

Opportunity Market: Used Cars, Shared Mobility, Public vehicles etc.

Magneti Marelli: Ozone Generator



Purpose: Vehicle/Workshop disinfection Solution

Benefits: No consumables involved as compared to other methods involving sanitizers

Opportunity Market: Possible applications beyond automotive also include- Domestic use

Note: Existing product rebranding

Roberlo: Sanius Workshop Sanitizer



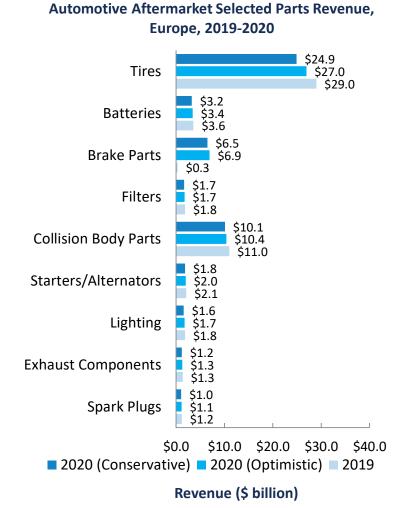
Purpose: Surface disinfectant for use in workshops- launched by Roberlo (company specializing in coating and refinish aftermarket products)

Benefits: Handy solution for workplace safety and hygieneparticularly to address customer fears around contamination

Opportunity Market: Workshops, salvage yards etc.

2020 AFTERMARKET OUTLOOK- EUROPE

626 Severe pandemic implications will change both vehicle ownership and travel behavior for vehicle owners, thereby altering the entire mobility landscape in Europe **Overall Automotive Aftermarket Revenue,** Europe, 2019-2020 YOY Change YOY Change (\$ billion) \$120.00 (5.0%) (12.9%) \$100.00 \$80.00 Revenue \$60.00 \$112.40 \$106.80 \$97.87 \$40.00 VIO \$20.00 (Million Units) 2019: 343.0 \$0.00 2019 2020 2020 2020e: 349.8 Optimistic Conservative 2020 Aftermarket Outlook Western Europe has been more exposed to impact of Corona Virus and will also 1 thereby see the severe impact on aftermarket demand Supply chain alteration- with shifts in production bases to Eastern Europe for 2 more manageable logistics could also happen Other possible shifts include heightened use of e-mobility options like bikes, escooters for short-mile while at the same time cross-country travel could see 3 more use of personal vehicles in the long run Note: Only selected part categories represented in the chart and it is therefore not reflective of overall revenues



Source: Frost & Sullivan analysis

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CHINESE AFTERMARKET REVIVAL IN MOTION

From new product innovation to targeted program offerings, industry participants are pulling out all shots to leverage aftermarket opportunity in hand



Customer Safety Clinic launched at all dealer locations, offering free sanitization and discounted maintenance related services

Hyundai & KIA (South Korea)



Both OEMs are offering financial aid of \$1.8 million to repair and maintenance service network affiliations-Bluehands (Hyundai) and Auto Q (KIA)

途虎行车

• Phased approach- complete relaxation in affiliation fee in first month, and then a discounted fee in following months

Post re-opening of Wuhan, Tuhu- the online parts seller launched a Wuhan Only Promotion offer providing free disinfection, and battery services till end of April 2020

Also includes discounted offers on replacement tires and maintenance packages.





New SUV 'ICON' launched with **cabin air filtration capabilities** comparable to N95 mask

KEY TRENDS & OPPORTUNITIES EMERGING IN AFTERMARKET POST COVID19 ACROSS GLOBAL MARKETS



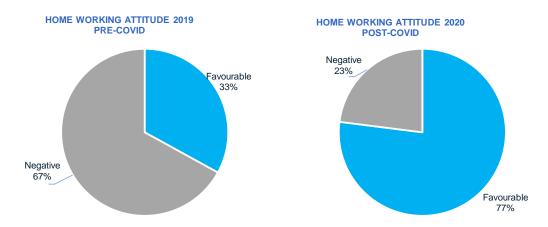
Note: Market Opportunity refers to annual revenue opportunity in 5 years

COVID-19 EXPECTED TO SIGNIFICANTLY INCREASE WORKING FROM HOME POLICIES

Together with a shift in corporate mobility policies it is likely to alter urbanisation trends and transform the mobility industry

WILLINGNESS TO WORK FROM HOME ON A GLOBAL EMPLOYEE SAMPLE

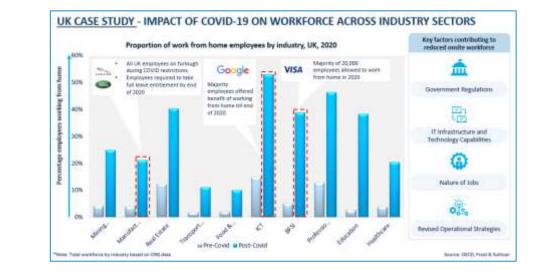
Data source: GlobalWorkplaceAnalytics.com



«Home office will be the norm for over 800,000 people post COViD, stating significant office cost reductions» (*HR head of PSA Group*)

«Home working has shown that productivity can be achieved so managers are not in a hurry. The plans we are preparing reduce office capacity by 35% to 50%» (Head of property investor JLL's workplace strategy for Europe)

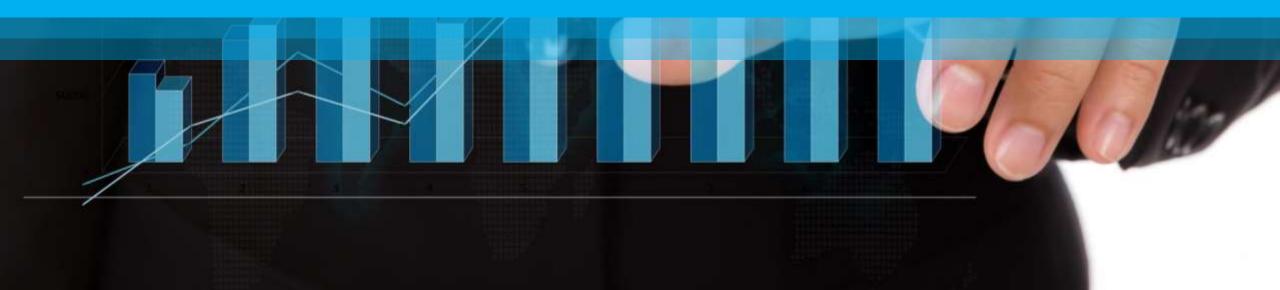
«People want to come back to the office – not full time, but to see each other and be part of a group and a project» (Associate, real estate company Cushman & Wakefield)



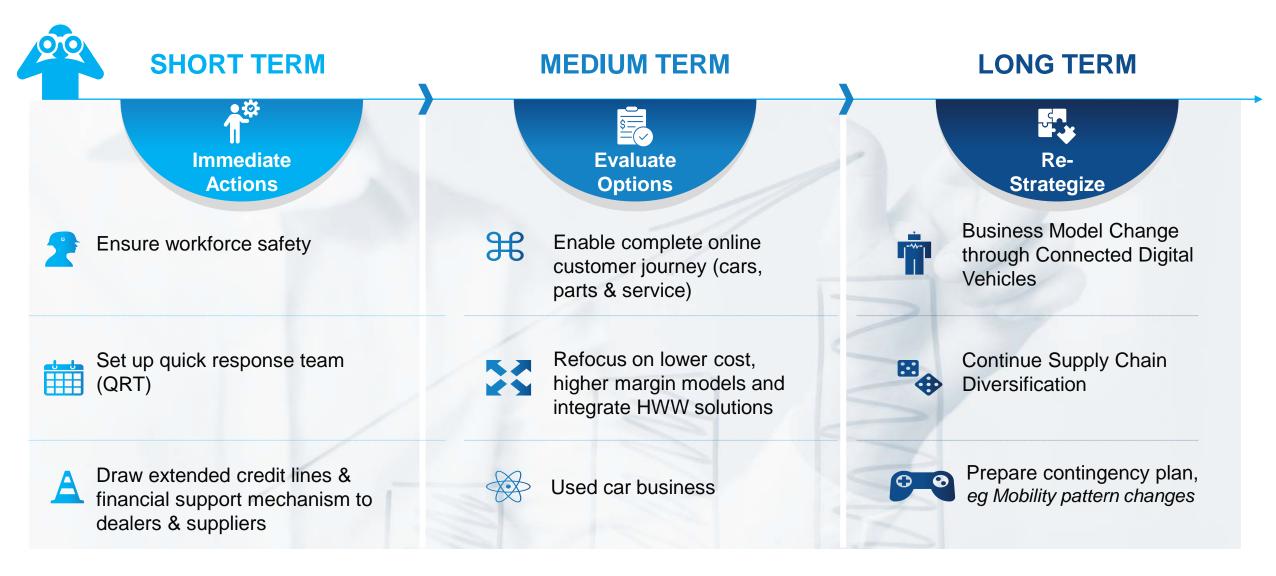
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Growth Dialogue *Powering clients to a future shaped by growth*



FOCUS ON DECISIVE ACTION, MEASURED STRATEGY ALIGNMENT AND REVISED LONG-TERM ROADMAPS



HOW CAN OUR TEAM HELP YOU?

FutureCasting	 Call for action to CEOs to Respond, Reset and Rebound. To support in RE- PLANNING, RE-FORCASTING & Future proofing
Cars As Vehicles Of Health	 Robust data-backed recommendations on the ideal use cases, packages and pricing to follow for implementation of Health Wellness & Wellbeing features in the Car
Market Due Diligence of Used Car Market	 Evaluate the opportunities in used car market including potential for used electric cars, online sales of used cars, used car leasing and other KPIs of the sector
EV Sales Tracker	 Monthly thought leadership analysis of Global EV models sales by key markets and OEMs
Cell & Battery Manufacturing Feasibility Analysis	 To develop a winning strategy in cell and battery manufacturing business with help of robust and actionable insights
COVID Regulator Tracker	 Bi-Weekly global monitor of Governmental policies at country level to support Automotive Industry players to re-shape strategy and rebound from COVID crisis.,

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FOR ADDITIONAL INFORMATION



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